SOUTH FORK

SOUTH FORK
STATE RECREATION AREA
2007
DEVELOPMENT PLAN

NEVADA DIVISION OF STATE PARKS

Randy Moore, Conservation Specialist
Jenny Scanland, Parks and Recreation Program Manager
Steve Weaver, Chief of Planning & Development
Jim Wilkenson, Park Supervisor
University of Nevada, Las Vegas

SOUTH FORK
STATE RECREATION AREA
2007
DEVELOPMENT PLAN

Primary Contributors for Informational, Technological and Financial Support and Assistance

NEVADA DIVISION OF STATE PARKS

UNIVERSITY OF NEVADA LAS VEGAS

LAND AND WATER CONSERVATION FUND

ELKO COUNTY

TABLE OF CONTENTS

References

List of Figures

List of Tables

I. INTRODUCTION

South Fork State Recreation Area serves as a year-round recreational facility that fulfills a growing demand for water-based recreation opportunities in Nevada, such as fishing, boating, waterskiing, and kayaking. In addition to this primary purpose, land-based recreational opportunities include hiking, camping, picnicking, wildlife viewing, horseback riding, cross-country skiing, and ice skating.

A. PURPOSE OF PLAN

1. Purpose

The purpose of this plan is to update the 1984 Development Plan for South Fork State Recreation Area. The plan, which is over 20 years old, no longer addresses the needs and circumstances of the surrounding region.

The updated plan begins with an introduction to the document and then covers the description, location and park setting along with the park's history in chapter I; regional influences which directly and indirectly affect the park in chapter II; the park's natural and cultural resources, including existing facilities and description of uses in chapter III; the resulting development plan in chapter IV; and a management plan in chapter V. The four plan development stages are: data inventory and analysis, public participation, alternative generation, and recommended plan development.

2. Planning Process

The current South Fork planning review process has involved nearly one year of work between 2006 and 2007 by the Nevada Division of State Parks (NDSP), the University of Nevada, Las Vegas (UNLV), partnering agencies, and the public. Funding was provided from the Land and Water Conservation Fund administered by the National Park Service.

a. Past Plans

Past plans addressing resources, fisheries, trails, and other issues were reviewed and used in identifying preliminary issues to be addressed by the planning effort. These plans included:

- South Fork State Recreation Area Plan (Design Concepts West, 1984)
- Fisheries Management Plan South Fork Reservoir (Nevada Department of Wildlife, 1988)
- South Fork Humboldt River Interdisciplinary Management Plan and Environmental Assessment (U.S. Department of the Interior, Bureau of Land Management, Elko Field Office, 1999)

- Nevada's Statewide Comprehensive Outdoor Recreation Plan (SCORP) – Assessment and Policy Plan (Nevada Division of State Park, 2003)
- Nevada State Recreational Trails Plan (Nevada Division of State Parks Planning and Development Section, 2005)

b. Process

Data Inventory and Analysis - Staff collected site and area information for South Fork State Recreation Area, and the region in many categories: land use trends (ownership, land use, zoning, transportation, trails, and utilities), natural resources (topography, geology, hydrology, vegetation, soils, slope, wildlife, climate, air quality, and perceptual attributes), and cultural resources (existing facilities, archaeological and historical resources).

This information was then analyzed and development limitations and opportunities were identified. User survey data from the past 5 years was analyzed and graphics were developed to present findings to the public at the first public workshop held March 8, 2007.

Public Participation - Among the methods used to be responsive to existing and future needs were: 1) survey of users, 2) public meetings, 3) continued liaison with community groups by staff, 4) monitoring of trends, and 5) actual park use.

The 1984 Plan goals and issues were presented as well as those which had been brought up through surveys, staff and Elko County prior to the first public meeting. Maps, pictures, site inventory information and analyses, current demographics and trends, as well as user survey results, were presented to the public on March 1st and 8th in Elko, NV.

The public was asked to redefine those issues, goals and objectives. They were also asked to put forth opportunities and ideas that the staff could use in development of alternatives.

Based on resultant information from the public meetings, management alternatives were developed in April 2007 by NDSP staff and Charlie Myers, a representative from the Elko County Commission [See Chapter 4 and Alternatives, Appendix 4.2-4.6]. These alternatives were then presented for public comment at a second public meeting on July 18, 2007.

Participants in the development of the first phase of data inventory and analysis and assistance with the first public meeting include but are not limited to:

- Nevada Division of State Parks
- Nevada Back Country Horsemen's Association, Elko Chapter
- Elko County Commission Action Team representatives
- Elko County Visitors Authority (ECVA)
- Nevada Department of Water Resources
- Nevada Division of Forestry (NDF)
- Nevada Division of Wildlife (NDOW)
- Public Lands Use Advisory Council
- SCRWCWMA
- South Fork Band of Western Shoshone
- U.S. Natural Resource Conservation Service

B. PARK SETTING

1. Description and Location

a. Description of Park and Location

South Fork State Recreation Area (SRA) is located 16 road miles south of Elko, Nevada on land that used to be outside the Elko urban area (See Park Location, Figure 1.1 and Vicinity Map, Appendix 1.1). Since 1984, development of suburban communities has occurred within the regional area and directly adjacent to the Recreation Area.

The site consists of approximately 4,000 acres of scenic river valley, wet meadow, low rolling hills, and river-cut terraces (See Park Boundary Map, Figure 1.2). The South Fork Reservoir covers 1,650 of those acres. Elevations range from 5,233 feet at the reservoir to 5,500 feet in the higher areas near Cedar Ridge.

Visitors reach South Fork SRA by traveling 7 miles south of Elko on State Route 227, then 5.5 miles south on State Route 228, and 3.5 miles southwest on Lower South Fork Road. All sixteen miles of road are paved.

b. Physical Setting of the Area

South Fork SRA is located in the northern portion of the Basin and Range physiographic province in northeastern Nevada. It lies on the South Fork of the Humboldt River, approximately 14 miles upstream from its confluence with the Humboldt River. The dam site is in section 4, T32N, R55E, MDM, just upstream from South Fork's confluence with Ten Mile

Creek. The Ruby Mountains, which rise to 11,387 feet at Ruby Dome, lie 10 to15 miles to the east and provide a grand scenic backdrop for the site.

The South Fork of the Humboldt River is a main tributary to the Humboldt River drainage basin which originates along the west slope of the Ruby Mountains approximately 12 miles south of Elko, Nevada. The South Fork Reservoir inundated a wide alluvial river valley containing fertile meadows. Older river terraces with gently to steeply sloping bluffs flank the meadows and overlook the valley.

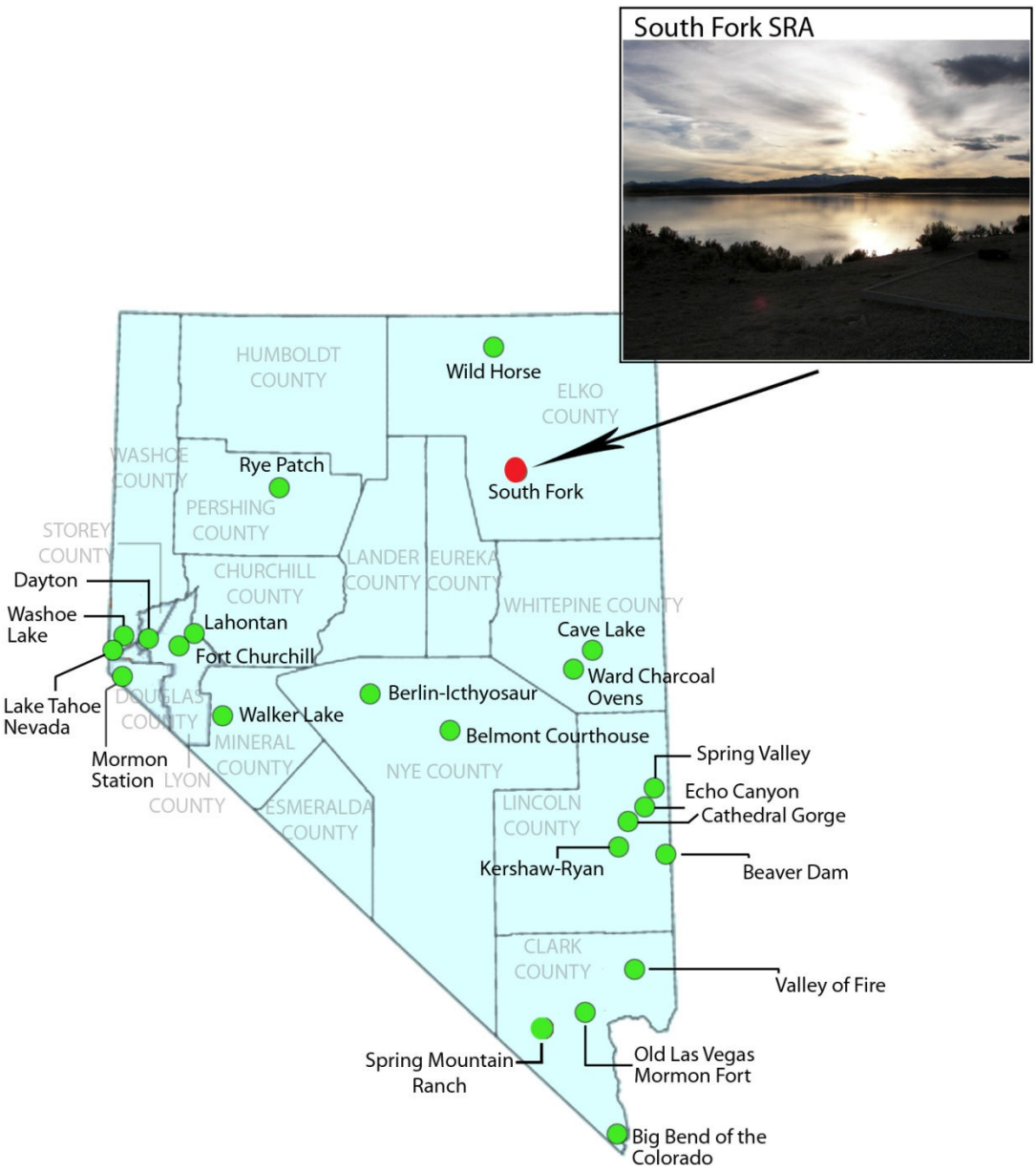


Figure 1.1 Park Location

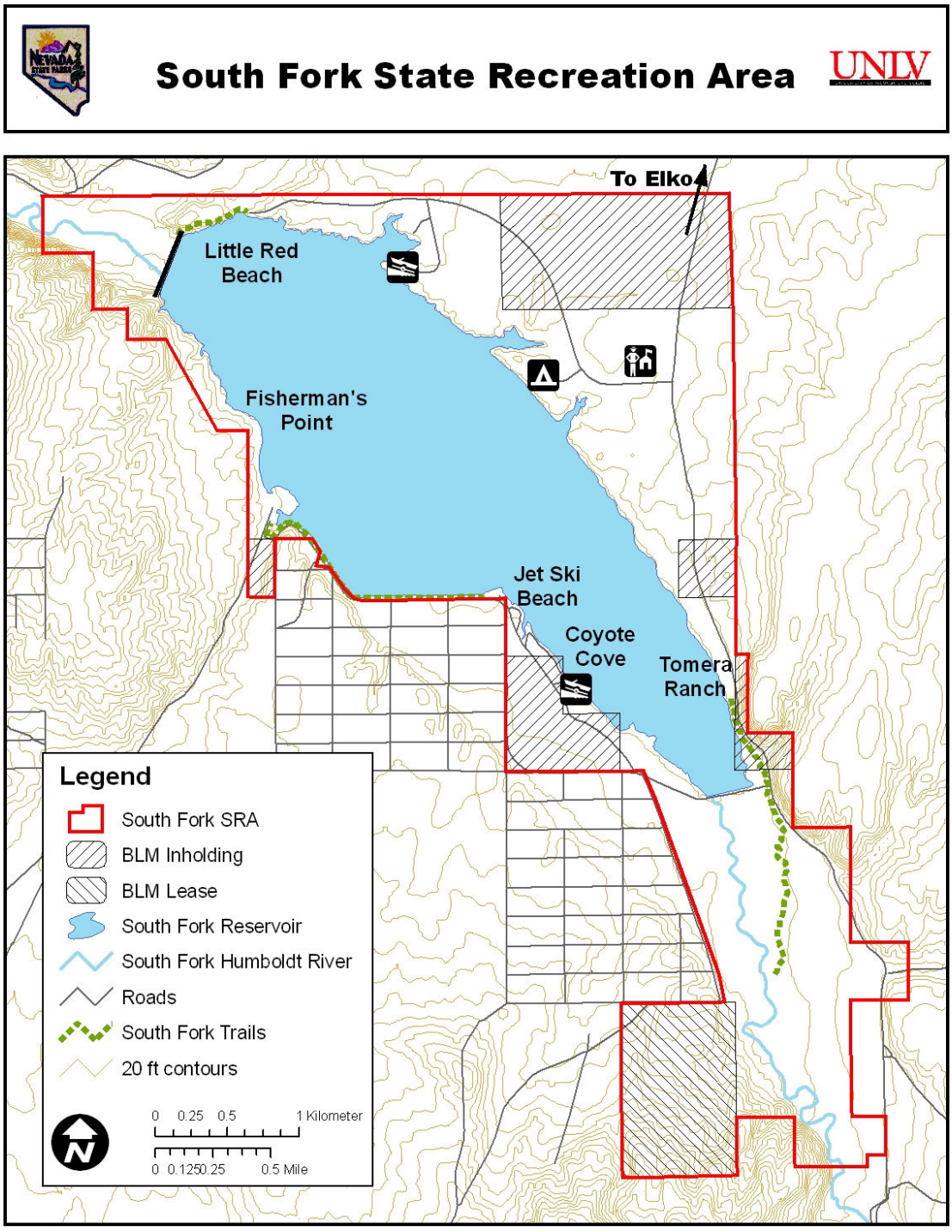


Figure 1.2 Park Boundary Map

c. Adjacent Property Ownership

Land ownership in Elko County includes private lands, tribal lands, state lands, and federally managed public lands. A checkerboard of public and private lands surrounds South Fork State Recreation Area, a holdover from the nineteenth-century land grants to the railroads. Visitors drive through small tribal holdings of a branch of the Te-Moak Western Shoshone within one mile of the Recreation Area boundary to the northeast of the Area entrance and past tribal holdings near the town of Lee. The U.S. Forest Service manages the Humboldt-Toiyabe National Forests, which includes the Ruby Mountains to the east of South Fork State Recreation Area. The U.S. Bureau of Land Management manages the South Fork Humboldt River Canyon, which abuts the northern boundary of the State Recreation Area, as a Special Recreation Management Area. Other BLM-managed land forms the eastern border of the State Recreation Area. There are 860 acres of BLM property in-holdings that have been leased as Recreation and Public Purpose use to the State of Nevada for a period of 25 years. Patents for 580 acres of this leased land have been applied for and the remaining 280 acres is scheduled for patent application before 2011.

Privately owned lands that abut the South Fork State Recreation Area boundary include:

- Western Hills Subdivision, large 5 to 10 acre parcels north to northeast of the Recreation Area;
- Lucky Nugget 1 Subdivision which parallels the entire southwestern shore;
- Lucky Nugget 2 Subdivision which lies south of the Wetlands Mitigation Area at the mid-point of the western shoreline; and
- An unnamed development of about six private residences on ten-acre or greater lots west of Fisherman's Point.

[See Land Ownership Map, Appendix 1.2].

2. Current Goals and Objectives

a. Legislated Goals and Objectives

The Nevada Division of State Parks (NDSP) is one of many agencies within the Department of Conservation and Natural Resources. The Division is directed by legislative intent to "acquire, protect, develop and interpret a well balanced system of areas of outstanding scenic, recreational, scientific and historical importance for the inspiration, use and enjoyment of the People of the State of Nevada and that such areas shall be held in trust as irreplaceable portions of Nevada's natural and historic heritage" (NRS 407.013).

b. Policies Related to South Fork State Recreation Area

Management of all of Nevada's State Parks must follow goals and objectives as set forth in the Division's policy manual. Those which are appropriate to updating this plan are as follows:

i. The 1984 Development Plan (NDSP 1984)

Two primary goals responded to concerns expressed by local citizens and agencies of Elko County during development of the 1984 Development Plan (NDSP, 1984).

Goal #1. To provide a recreation resource which responds to the outdoor recreational needs of the residents of Elko County and the State of Nevada.

Goal #2. To protect and enhance all of the natural and cultural resources of the South Fork State Recreation Area and to preserve its outstanding qualities as a significant asset to the State's outdoor recreational character.

Based on these goals and the concerns expressed by participants during the primary planning phase, NDSP identified objectives as a means of reaching the goals.

Objective #1. Develop a recreational area and facilities that emphasize water-based activities with accompanying land-based services.

Objective #2. Provide a rich and rewarding experience that will expand the park user's awareness and appreciation of the natural environment.

Objective #3. Provide for individual recreational choice by interrelating the facilities and open spaces.

Objective #4. Develop the South Fork State Recreation Area so that it will integrate with the local state and federal recreational areas.

Objective #5. Protect and promote historical and archaeological resources of the park site and surrounding area.

Objective #6. Create a flexible planning approach to accommodate changes in recreational demand.

Objective #7. Design use areas that will provide for minimal stress on wildlife habitat.

Objective #8. Minimize the impact of park traffic on the natural environment.

Objective #9. Minimize negative visual impacts from the development of proposed park facilities and preserve the inherent character of the site.

Objective #10. Minimize fire hazard to the recreation area and surrounding residents.

Objective #11. Conserve water and energy in facility development and operation.

Objective #12. Design park facilities to allow for efficient and cost effective maintenance.

Objective #13. Develop and maintain interagency coordination for park management and maintenance.

ii. The 1988 South Fork Reservoir Fisheries Management Plan (NDOW 1988)

At the same time that the 1984 Plan was being developed by NDSP, the Nevada Department of Wildlife (NDOW) developed its Fisheries Management Plan (NDOW, 1988). In this plan NDOW responded to results from a 1984 public survey that identified lake fishing as the number one water-based activity and ice fishing as the number one winter activity.

Goal #1. To manage South Fork Reservoir as a three-species coldwater/warmwater fishery.

Goal #2. To allow the maximum harvest of trout and catfish by a maximum number of anglers.

Goal #3. To provide moderately high angler success in catching smallmouth bass of above average size.

The three species to be introduced included rainbow trout, smallmouth bass, and channel catfish. Brown trout and largemouth bass have been introduced since the 1988 plan was prepared. Rainbow trout were introduced as a fish desirable to the sport-fishing public. Channel catfish were proposed primarily to fulfill a possible latent demand for this popular fish, which were not abundant anywhere in the

northeastern part of the state. Smallmouth bass were proposed as a biological control on non-game species in the reservoir.

3. Major Current Issues

a. SCORP Identified Issues

Nevada's 2003 Statewide Comprehensive Outdoor Recreation Plan (SCORP) identified major concerns shared by most Nevadans relating to outdoor recreation.

The SCORP identified eight General Category Issues, all of which directly relate to South Fork SRA in some way. They were considered in development of this plan.

Issue #1. Public Access to Public Lands: There is a growing need to protect, maintain, and increase public access to public lands for the greatest diversity of outdoor recreational users.

Issue #2. Funding: Existing levels of outdoor recreation funding are inadequate to meet the recreation needs of Nevada.

Issue #3. Recreational Trails: There is a growing need to provide recreational trails and pathways throughout the state, in both urban and rural areas.

Issue #4. Protection of Nevada's Natural, Cultural, and Scenic Resources: Protection of natural resources needs to be put in balance with users. Create opportunities for the users to participate in the protection, i.e., as site stewards. Mandate that a majority of fees paid in a recreation area stay in that area for improvements and maintenance. Citizens acknowledge this as an investment and a way to participate in the conservation of these resources.

Issue #5. Water Resources Are Vital Components of Nevada's Recreation Base: Water resources must be protected to maintain the needed quantity, quality, and accessibility for public recreation. Recreation and wildlife depend on the limited water resources in Nevada.

Issue #6. Interpretation and Education: Encourage, fund, and provide environmental, cultural, and heritage interpretation and educational programs and opportunities, especially outdoor opportunities, throughout Nevada.

Issue #7. Nevada's Growing Population Increases Demand: Nevada's growing population is placing an increasing demand on recreation

resources and recreation suppliers at all levels, statewide. New resources need to be identified, acquired, funded, and developed.

Issue #8. Coordination and Cooperation: Coordination and cooperation between public and private recreation providers at all levels is very important. More true support from private citizens, user groups, and governmental entities (local, state, and federal) are important partnerships to pursue.

b. User Conflicts/Visitor Impacts

Conflicts exist between motorized and non-motorized water-based activities.

- Noise and wakes from jet skis and motor boats.
- Enforcement of speed and boating rules.
- Disturbance by motorized boating in bass nesting habitat

Overcrowding and congestion exist in multi-use areas.

- Congestion at boat ramp due to insufficient launch lanes and docking sites.
- Degradation of beach areas due to overuse in popular areas.

c. Public Identified Issues

The NDSP hosted a partnering meeting on March 1, 2007, and a public open house on March 8, 2007, in Elko. Attendees were asked to identify:

- The two most important things that South Fork SRA provides or could provide for outdoor recreation;
- Their most favorite and least favorite things about South Fork SRA; and
- Issues or opportunities for each use area.

In addition, they were asked to provide any other ideas on how South Fork SRA might meet their needs in the future for water-based activities, day and overnight use, trails, and habitat/wildlife management.

Current Activities and Facilities. When asked to name the two most important things that South Fork SRA *currently provides*, responses identified the convenience of fishing, boating, swimming, and kayaking close to Elko as the main water-based recreational activities. The important land-based activities included equestrian, hiking and nature trails and camping.

Potential Activities and Facilities. When asked about the two most important things that South Fork SRA *could* provide, the public identified improved loading/unloading ramps and docking facilities with nearby boat storage; a fish cleaning station at the RV dump site; a designated swimming beach; improved hiking trails; group day-use facilities; and RV and additional camp sites. They also asked for more shade trees, access to drinking water and free firewood. At group facilities they would like to see an amphitheater and fire rings. Finally, they suggested that NDSP protect the Hamilton boat ramp and Hastings Cove with a floating log break wall to suppress wave action.

Management Issues. One main management issue involves conflicts between motorized and non-motorized water-based activities, such as overcrowding; congestion at boat ramps; noise and wakes from jet skis and motor boats; and enforcement of speed and boating rules. Concerns were raised about fishing tournaments, which allow private companies to profit from a public resource. Attendees also identified a possible explosion of ATV/OHV and motorcycle use, and whether the park is large enough for these uses at all. With respect to fees, attendees suggested that South Fork SRA be allowed to retain and possibly increase user fees to reinvest in the park for deferred maintenance projects and upgraded facilities.

Water-Based Activities. Attendees made some specific requests for improvements. First, they asked for a balance between, and separate areas for, motorized and non-motorized uses on the water (e.g., motor boats, jet skis, kayaks, canoes, float tubes). They identified the existing no-wake zone as a good start, but asked for additional no-wake zones and protected swimming areas. Second, they asked NDSP to base recreational uses on what the soils and habitat can handle. Third, they asked whether fishing limits could be changed in a way that would allow South Fork to become a world-class fishery. Fourth, they suggested that no additional fees should be required for use of facilities (e.g., fish cleaning station), since visitors had already paid to enter and fish. Finally, attendees asked for improved boat ramps at Coyote Beach, possibly at Jet Ski Beach, and the Hastings boat launch and marina.

Day and Overnight Use. Attendees identified the need for more and better developed facilities, such as a long strip of developed camp sites along Jet Ski Beach. General requests included more shade, access to fresh water, and more day-use sites.

Trails. The park needs developed trails, trail heads, and parking areas, especially for equestrians, mountain bikers, cross-country skiers, and OHV users (if allowed). Trails should link to regional trails and one should encircle the reservoir. Interpretive signs should be placed along trails and

trash receptacles placed at the trail heads. Wildlife and bird-viewing platforms should be constructed.

Habitat and Wildlife Areas. Habitat improvements should focus on noxious weed control and selecting suitable vegetation based on the capabilities of the soils. Fuel management is needed around the perimeter of the park. Hunting needs to be controlled as population increases. Only non-motorized use should be permitted in the North and South Wildlife Habitat Management Areas.

d. Environmental Considerations

i. South Fork State Recreation Area Specific Issues

Issue #1. Reduction of fuels and wildland fire management.

Issue #2. Protection and management of the river corridor for improved fisheries habitat.

ii. South Fork Humboldt River Interdisciplinary Management Plan and Environmental Assessment (U.S. Department of the Interior, Bureau of Land Management, Elko Field Office, 1999)

This plan covers all BLM administered land within the South Fork Canyon Special Recreation Management Area (SRMA). The SRMA covers a 4,600-acre checkerboard of public and private lands adjacent to the northwest boundary of the South Fork State Recreation Area. The Humboldt River flows for 12 miles from South Fork Dam to the Canyon mouth east of Maggie Creek Ranch.

A working group, which included the Nevada Division of State Parks, identified seven issues. These may be generally applicable to South Fork State Recreation Area as well as the SRMA.

Issue #1. Vandalism to public and private property and the high level of litter.

Issue #2. Protection of landowner and property rights while improving access to public lands.

Issue #3. Indiscriminate off road vehicle travel.

Issue #4. Recognition, protection and enhancement of a wide variety of economic values.

Issue #5. Management of a variety of resources for the best mix to ensure long-term sustainability (e.g., riparian and river habitat, fish and wildlife, cultural and historical resources, recreation resources).

Issue #6. Education of uninformed visitors about resource values.

Issue #7. Control or eradication of noxious weeds.

C. PARK HISTORY

1. History of the Area

Native American Indians inhabited the Elko area for 10,000 to 13,000 years prior to the first visits by European trappers and explorers. They lived by hunting, fishing and gathering native plants, including seeds, berries, rose hips, and pine nuts. The first recorded white men in the Elko area were fur trappers led by Peter Skene Ogden in 1827. In 1841, the first pioneers passed through Elko, following the Humboldt River westward. These travelers included the ill-fated Donner Party and later the '49ers. During the 1850s wagons following the course of the Humboldt River cut deep tracks in the rock that can still be seen today (Elko Area Chamber of Commerce, 2006). The Hastings Cut-Off, an alternative route through the Ruby Mountains, is visible in South Fork State Recreation Area.

The earliest form of scheduled, routine transportation for passengers, freight and mail were the stage lines. As early as 1851, stagecoaches crossed the Humboldt Valley from Salt Lake City, Utah, to Sacramento, California carrying the mail. Elko was founded by the Central Pacific railroad in 1868. The town grew rapidly as a freight terminus to supply mines in the region. On March 5, 1869, the State Legislature created Elko County from part of Lander County and made Elko the county seat (Elko Area Chamber of Commerce, 2006).

In May 1869, when the Golden Spike was driven at Promontory Point, Utah, linking the Central Pacific and Union Pacific Railroads, Chinese laborers from the Central Pacific's track crew were abandoned. Hundreds headed west and many stayed in Elko. During the summer they grew vegetables for the town. Their gardens were mostly on the northern banks of the Humboldt River and were watered by hand. Eventually the Chinese built the first water system in Elko. They built a reservoir and dug a ditch to carry water from Osino to the reservoir, a distance of 8 to 10 miles through what is now City Park. Scottish herders brought bands of sheep into Nevada from California and Oregon in the 1860s. Basque sheepherders from the Pyrenees Mountains in Spain and France became the preferred employees on sheep ranches throughout the west (Elko Area Chamber of Commerce, 2006).

By late 1869, Elko's population had climbed to 2,000. When the state legislature passed a law to create a university, they left the location open to competition

between the cities and counties. Elko went the extra mile and donated land to the state, as well as providing $20,000 to back up their offer. The University of Nevada opened on October 12, 1874, and remained in Elko for 11 years. In 1885, Elko continued its commitment to education by opening the first high school in the state (Elko Area Chamber of Commerce, 2006).

Initial settlement of the South Fork Valley occurred in 1867. South Fork Valley offered unclaimed farm and ranch land, a constant supply of water, and good travel routes between thriving mining camps. Stage and freight lines and the completion of the railroad through Elko provided expanded markets for garden and dairy products, livestock, and grain to mining camps (Design Concepts West, 1984).

South Fork Reservoir is built upon three historic ranch complexes. These three ranch complexes were the Porter (Julian Tomera) Ranch, Landa Ranch and the Reinhart (Edward Tomera) Ranch. All three ranch complexes changed ownership numerous times from the 1860s to 1983. In 1983, the Tomeras, who were the last ranchers in what is now South Fork SRA, sold their property to the State of Nevada (Design Concepts West, 1984).

Currently Elko and its surrounding area, including Spring Creek, have been experiencing a development boom to accommodate housing shortages. Several projects are in the early construction or planning stage. They will bring several hundred new homes to the area ranging from affordable multi-family housing to the area's first gated community with prices up to one million dollars. The largest area of development near the North Eastern Nevada Regional Hospital, where Elko Mountain Village is being planned, and further along the Lamoille Highway towards Spring Creek where future development could include thousands of new homes (Sents, 2006).

2. History of South Fork State Recreation Area

The history of the South Fork Dam project and Recreation Area goes back to the 1938 Flood Control Act when the U.S. Congress authorized feasibility studies for building dams and reservoirs on rivers such as the Humboldt.

In 1950, the U.S. Corps of Engineers selected a site known as "Hylton Lake" on the South Fork of the Humboldt River. The name "Hylton" was derived from John J. Hylton who operated various ranching, farming and flour milling operations on the upper South Fork in the 1870s thru the 1920s.

Further studies during 1973-74 realized the possible detrimental effects that upstream flood control like "Hylton" would cause to the downstream wetlands of the Humboldt Sink. Studies later focused on alternatives to the originally proposed Hylton Dam which was scheduled to be 120,000 acre-feet in size. This is roughly 3 times the size of the present South Fork Reservoir.

In 1982, the Elko County Recreation Board hired an engineer to prepare a report on the feasibility of constructing a smaller recreational reservoir. This smaller reservoir, named the South Fork Reservoir and located ½ mile upstream from the proposed Hylton Dam, reduced the previously proposed Hylton Dam capacity of 120,000 acre-feet to 40,000 acre-feet and eliminated the flood control and irrigation storage requirements.

In 1983, the Nevada State Legislature passed Senate Bill 153 which involved the State in the project funding by issuance of State Revenue bonds. South Fork Dam was constructed by Frehner Construction. Construction began October 3, 1988 and was completed June 16, 1989 at a final cost of $18,718,866, using funding from the State of Nevada and Elko County residents. County Dam bonds were retired in 2004.

The South Fork Reservoir operation adopted a "flow-in flow-out" concept, thus protecting downstream water rights and minimizing the impacts to wildlife habitat in the Humboldt Sink. South Fork Dam is designed as a rolled, earthfilled embankment approximately 1,650 feet long, 90 feet high, with a 30-foot crest. Overflow is protected by primary and secondary spillways.

South Fork Reservoir is approximately three miles long and one to one and a half miles wide. The normal depth of water above the streambed is 67 feet; the normal pool surface area is 1650 acres. The basic premise of South Fork Reservoir is storage of excess flows of the Upper Humboldt Drainage system to provide a recreational reservoir.

South Fork Reservoir occupies what was once a wide alluvial river valley covered with fertile meadows which were used for grass cover, hay production and grazing pasture. With the reservoir filling past capacity in 1995, these meadows were flooded. Today visitors see the man-made lake flanked by older river terraces and gentle to steeply sloping bluffs.

Primary recreational uses of South Fork Reservoir are lake fishing and boating. With constant water levels, South Fork Reservoir has become a productive fishery. Trophy size rainbow and brown trout, smallmouth and largemouth black bass and channel catfish are the big five game fish species in South Fork Reservoir. These species are thriving in what were productive and densely vegetated meadows. Most fish caught are of exceptional girth compared to length. The Nevada Division of State Parks, Nevada Division of Wildlife and Nevada Division of Water Resources share operation and management of South Fork Reservoir.

II. REGIONAL INFLUENCES

A. DEMOGRAPHICS

1. Historic

Elko was established as a small tent town on the banks of the Humboldt River in 1868 as a camp for workers completing the transcontinental rail road. Soon mining and ranching added to the area's quick growth. In 1874 Elko was selected as the first site for the University of Nevada and had a population of 5,000, though the University would be moved to Reno nine years later. The population dwindled and then grew steadily during the early 20th century as Elko's place as a mining and transportation center grew. By the 1940s the population approached 10,000 and slowly grew over the next four decades. In 1980 Elko's population was 17,269. Fueled by a gold mining boom it reached 33,770 by 1990 (http://www.nevada-history.org/charts.html). The 2000 census listed Elko County as having a population of 45,291 (US Census, 2000).

Today Elko is the largest community between Salt Lake City and Reno. Mining and ranching remain the backbone of the local economy while Elko serves as the regional center for medical, transportation, commercial, and cultural services. The annual Basque festival and cowboy poetry gathering each garner national attention while the overall population of the area fluctuates with the value of gold.

2. Existing/Projected

In 2005, the State Demographer estimated Elko County at a population of 47,586. The State Demographer projected that over the next 20 years the population may drop by 6,000 for the county. Conversely, the overall state population is expected to nearly double in size (www.nsbdc.org). Combining the projected county population decline with the growth of the state, overall visitation at South Fork SRA should still remain at the current level or higher. It is important to note that these projections for Elko County fluctuate greatly because they depend heavily on the strength or decline of the gold mining industry.

In addition, several planned communities near the South Fork SRA are being developed along Lamoille highway between Spring Creek and Elko. "The new developments account for several hundred homes being built and in the planning process could account for thousands of new homes to be developed in the future" (Sents, 2006). If these mining and development growth trends materialize, a large increase in demand for recreational facilities at South Fork SRA could result.

Elko County Demographics

Elko County population and demographic information data used below is for planning purposes only. This is due to the uncertain dynamics of growth in Elko County and especially the Elko and Spring Creek areas outside of South Fork State Recreation Area. The future of South Fork SRA will be greatly impacted by actual numbers and trends.

As of the 2000 census, there were 45,291 people comprising 15,638 households, and 11,493 families residing in the county. The population density was 1/km² (3/mi²).

The racial makeup of the county in 2000 was 82% Caucasian, non Hispanic, 0.6% Black or African American, 5.3% Native American Indian, 0.7% Asian, 0.1% Pacific Islander, 8.5% from other races, and 2.8% from two or more races. 19.7% of the population was Hispanic or Latino of any race (Figure 2.1).

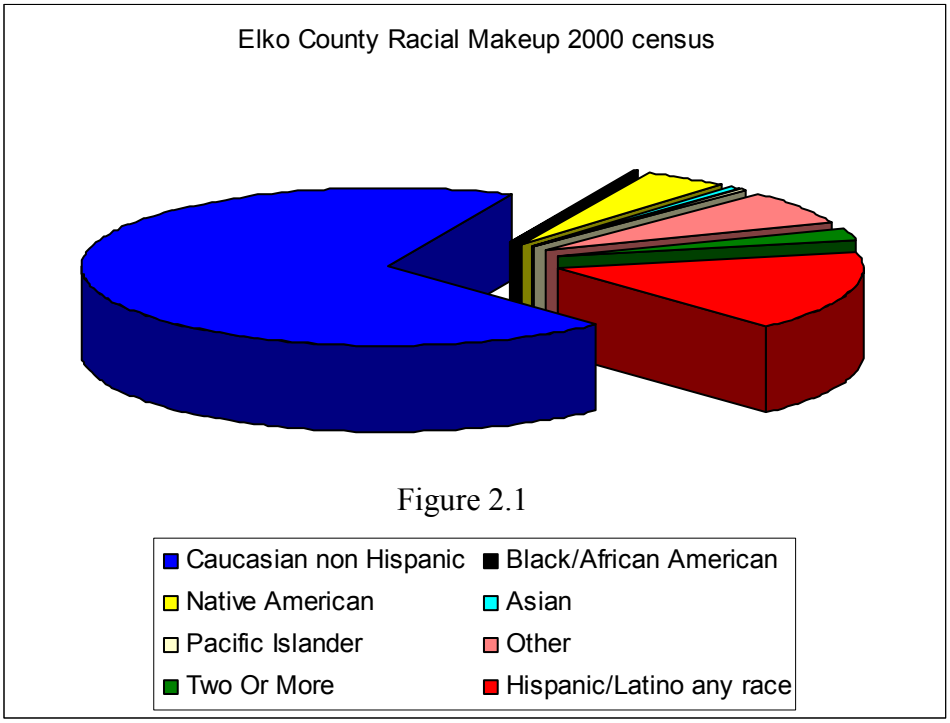


Figure 2.1

There were 15,638 households of which 43% had children under the age of 18 living with them, 59% were married couples, 8.4% had a female householder with no husband present, and 26.5% were non-families. 20.9% of all households were made up of individuals and 4.8% had someone living alone who was 65 years of age or older. The average household size was 2.85 and the average family size was 3.33 (Figure 2.2).

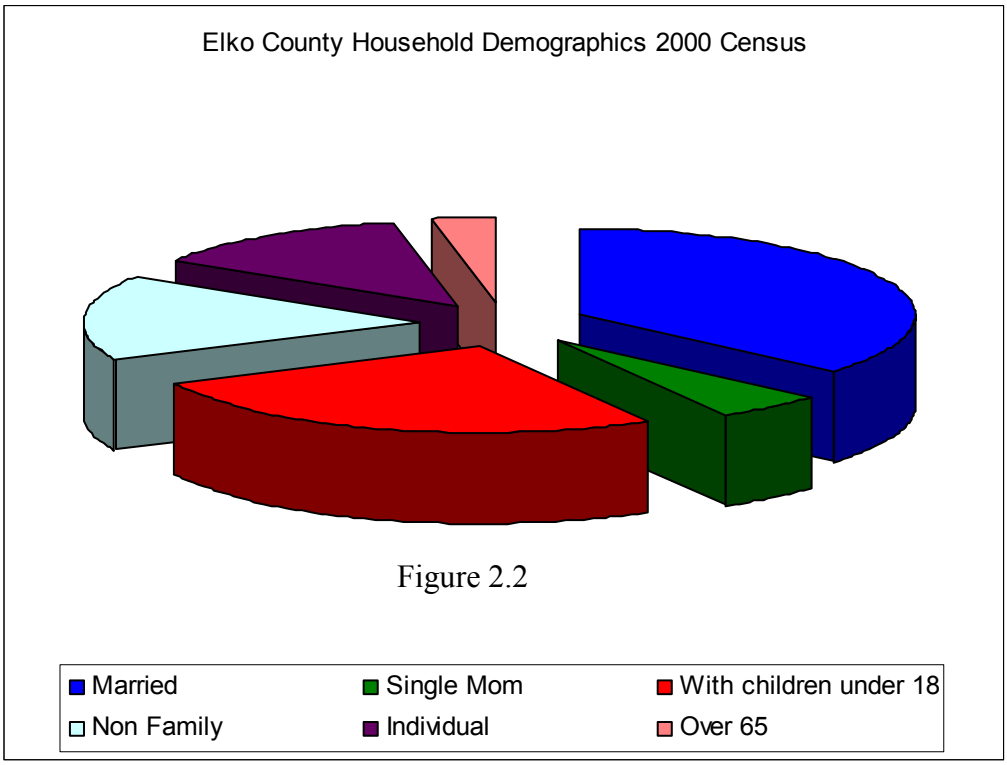


Figure 2.2

The age demographics of Elko County were distributed with 32.5% under the age of 18, 8.7% from 18 to 24, 31.6% from 25 to 44, 21.3% from 45 to 64, and 5.9% who were 65 years of age or older. The median age was 31.2 years (Figure 2.3).

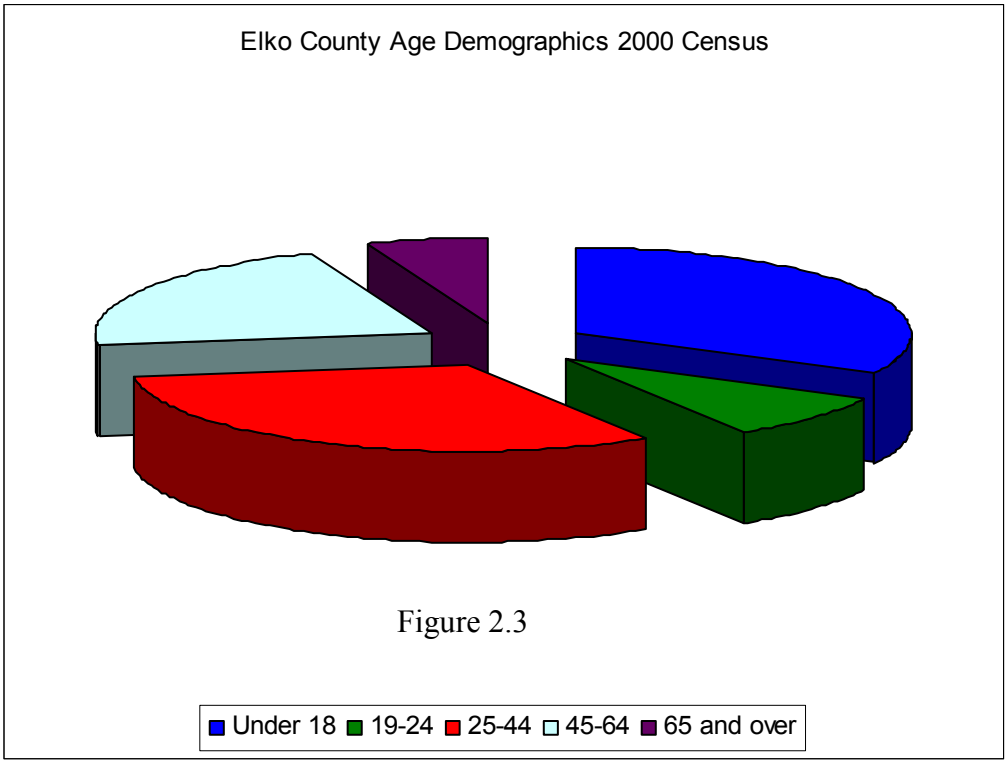


Figure 2.3

City of Elko Demographics

Elko is located at 40°50'11" North, 115°45'56" West (40.836396, -115.765525)[GR1]. According to the United States Census Bureau, the city has a total area of 37.5 km² (14.5 mi²). Elko is an incorporated city and the seat of Elko County. As of the census[GR2] of 2000, there were 16,708 people comprising 6,200 households, and 4,218 families residing in the city. The population density was 445.2/km² (1,153.3/mi²). There were 6,948 housing units at an average density of 185.1/km² (479.6/mi²). The racial makeup of the city was 83.2% Caucasian, non Hispanic http://en.wikipedia.org/wiki/White_%28U.S._Census%29, 0.4% African American, 2.7% Native American Indian, 1.1% Asian, 0.1% Pacific Islander, 9.6% from other races, and 2.9% from two or more races. Hispanic or Latino of any race was 21.1% of the population.

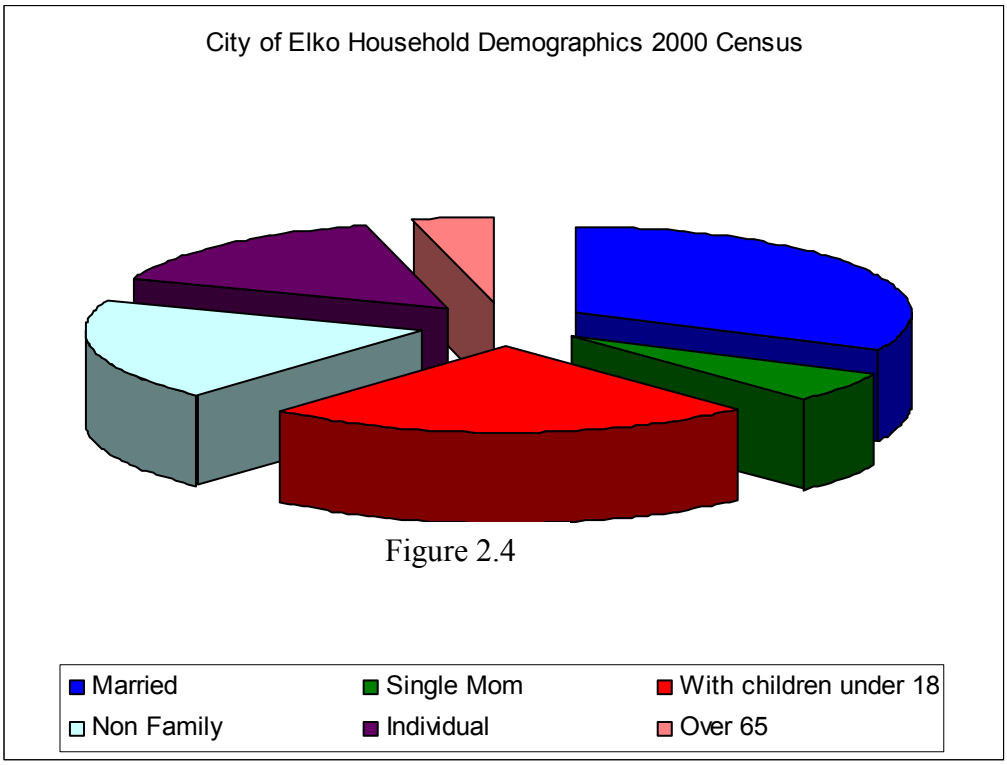


Figure 2.4

There are a slightly larger proportion of families in Elko when compared to overall demographics of the County. There were 6,200 households of which 39.2% had children under the age of 18 living with them, 53.5% were married couples, 9.1% had a female householder with no husband present, and 32% were non-families. 25.4% of all households were made up of individuals and 6.3% had someone living alone who was 65 years of age or older (Figure 2.4).

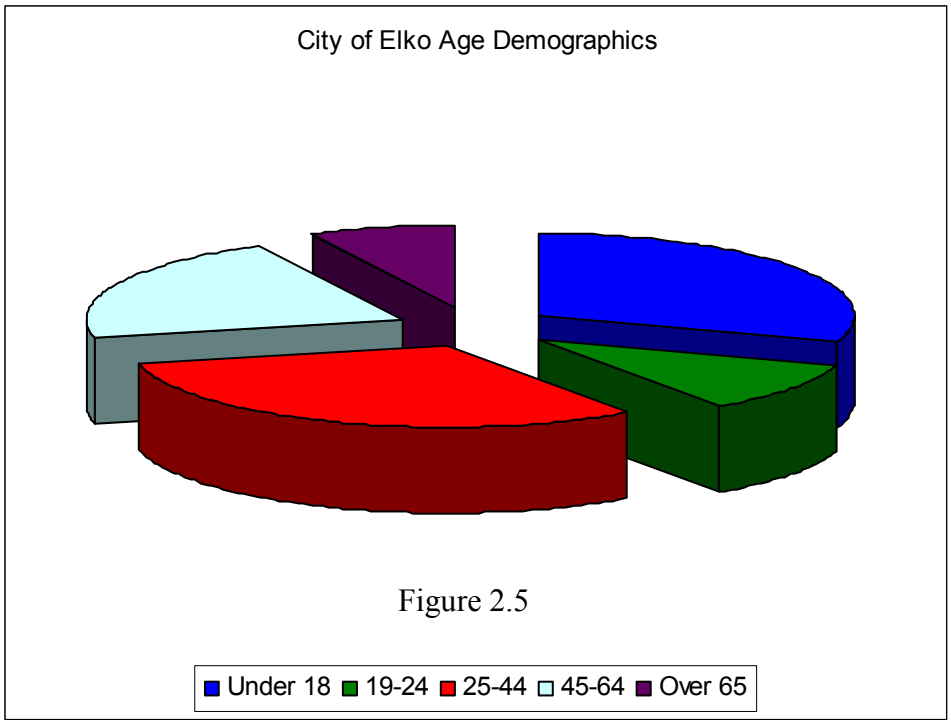


Figure 2.5

The average household size was 2.66 and the average family size was 3.24. In the city the population was distributed with 30.3% under the age of 18, 9.8% from 18 to 24, 31.2% from 25 to 44, 21% from 45 to 64, and 5.6% who were 65 years of age or older. The median age was 31.6 years (Figure 2.5).

B. RECREATIONAL DEMAND

1. Effect of Population Increases in Creating Demand

The steady rise in population of Elko County has placed an increasing demand on recreation facilities in the area at all levels. However, resident populations require certain park features not necessarily appropriate for a State Recreation Area to provide. If local recreation providers cannot keep pace with the region's growth, residents will apply increasing pressures on the State Park system to meet their needs.

2. Effect of Socioeconomic Data on Demand

The 2000 Census data provides insight into the socioeconomic condition of regional residents and park visitors. This information can be used to help determine the ability of regional residents to participate in the full range of recreational activities available. Compared to national and state data, Elko county and city show a relatively low percentage of poverty level families and senior citizens.

The population of the area leans towards families, and therefore affordable family and group activities areas are needed.

The median income for a household in Elko County was $48,383, and the median income for a family was $52,206. Males had a median income of $41,322 versus $24,653 for females. The per capita income for the county was $18,482.

A total of 8.9% of the population and 7.0% of families were below the poverty line. 9.5% of those under the age of 18 and 7.6% of those 65 and older were living below the poverty line.

As of the 2000 census, the median income for a household in the city of Elko was $48,656, and the median income for a family was $52,263. Males had a median income of $42,155 versus $26,823 for females. The per capita income for the City of Elko was $19,680.

A total of 8.2% of the population and 6.1% of families were below the poverty line. 8.9% of those under the age of 18 and 8.4% of those 65 and older were living below the poverty line (US Census Bureau, 2000).

a. Visitation Characteristics

Between 1990 and 2005, South Fork SRA was Nevada's eighth most popular state park with a mean of 110,997 visitors per year. Visitation to South Fork SRA has fluctuated greatly with as many as 199,839 visitors in 1996 and as few as 76,223 visitors in 1990. Following the peak of visitors in 1996, visitation has leveled at approximately 100,000 visitors, which is slightly below the mean (See Figure 2.6, 10-year visitors' survey).

Results from a small number of South Fork SRA visitors surveyed suggest the that 91% of visitors the park as their primary destination, 34% visit the park five times or more annually, and 51% come in parties of two or three people. The survey also showed a larger percentage of visitors staying overnight as compared with day users.

In contrast, overall visitation to all Nevada State Parks has gradually increased between 1990 and 2005 with relatively smaller fluctuations. Following its peak of 3,472,248 visitors in 2000, overall visitation leveled off at approximately 3,250,000 visitors, which is larger than the mean of 3,066,769 (See Figure 2.7, 10-year visitors' survey).

The 2003 Nevada Statewide Comprehensive Outdoor Recreation Plan (SCORP) estimates that eighty-four percent of Nevadans 16 years of age and older participated in at least one outdoor recreational activity in the year 2000. The plan projects annual participation days to continue to increase from 277 million days in 2000 to 316 million days in the year 2010.

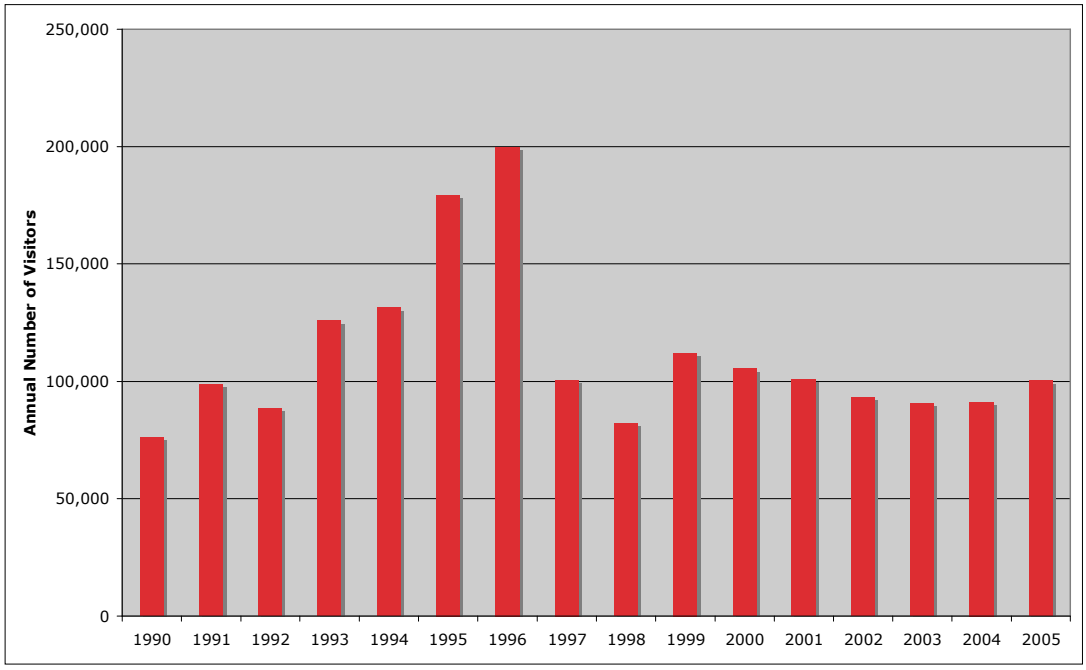


Figure 2.6 – South Fork SRA Visitation Trends

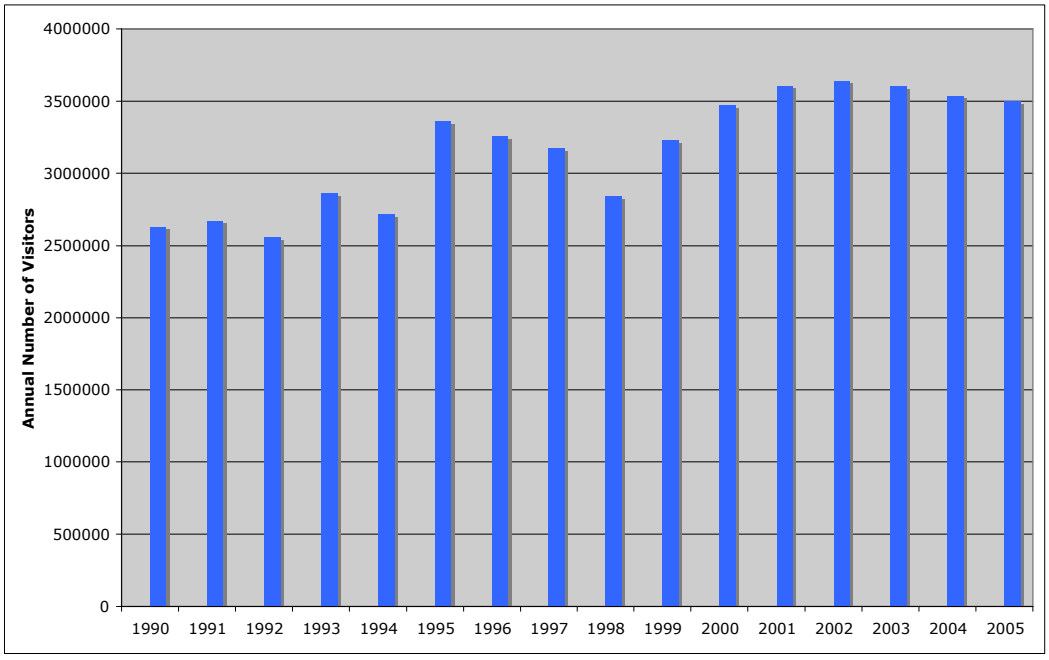


Figure 2.7 – Nevada State Park Visitation Trends

b. Activity Preferences

The 2003 SCORP research results on outdoor recreation needs and participation listed the following outdoor activities as being the most popular in Nevada in 2000: pleasure driving, picnicking, swimming in a pool, walking without a dog, and wildlife viewing. See table 2.1 for the Top 10 Nevada Outdoor Activities according to the SCORP (2003):

Table 2.1 Nevada's Top Outdoor Activities	**2003 SCORP (%)***
Pleasure driving	44
Picnicking	37
Swimming in a pool	32
Walking w/o a dog	32
Wildlife viewing	31
Swimming in a lake or stream	30
Hiking	28
Walking w/ a dog	28
Motorboating	27
Lake fishing	26

*The percentages are of Nevadans 16 years of age and older who participated in each specific activity in the year 2000. Respondents could pick more than one activity; therefore, the sum of the percentages is greater than 100.

According to the 2003 SCORP, the Nevada Market Region consists of Nevada, California, Oregon, Idaho, Utah, and Arizona. The plan listed the following outdoor activities as most popular in this region in 2000: walking for pleasure, family gathering, view/photograph natural scenery, and visit nature centers. See table 2.2 for Nevada Market Region's Top 10 Outdoor Activities according to SCORP (2003):

Table 2.2 Nevada Market Region's Top Outdoor Activities	**2003 SCORP (%)***
Walking for pleasure	79
Family gathering	73
View/photograph natural scenery	62
Visit nature centers, etc	57
Gardening or landscaping for pleasure	56
Picnicking	56
Sightseeing	49
Pleasure Driving	47
View/photography wildflowers, trees, etc	45
Visit a historical site	43

*The percentages are of Nevadans 16 years of age and older who participated in each specific activity in the year 2000. Respondents could pick more than one activity; therefore, the sum of the percentages is greater than 100.

The Nevada 2005 State Recreational Trail Plan Survey provides more up to date information on demands for trail activities. A random sample of trail users was asked to select the activities that they engaged in the twelve months preceding the survey. The most popular activities were walking, hiking, and OHV riding. See the table 2.3 for the 2005 Survey Most Popular Trail Activities Statewide:

Table 2.3 Activity	**2005 Trail Plan (%)***
Walking	55
Hiking	37
OHV riding	19
Jogging/running	16
Tour/regular bike riding	16
ATV riding	10
Mountain bike riding	10
Horseback riding	6
Rafting	6
Backpacking	5
Dirt bike racing	4
Kayaking	4
Canoeing	3
Snowshoeing	3
Cross country skiing	2
Snowmobiling	2

*The percentage is of total survey respondents who indicated participation in each trail activity. Respondents could pick more than one activity; therefore, the sum of the percentages is greater than one hundred.

Along with statewide survey information, visitor surveys from the South Fork Recreation Area in 2006 showed popular water and land-based activities. The activities in Table 2.4 are shown in descending order of popularity.

Table 2.4 **SOUTH FORK TOP ACTIVITIES**
Relaxing Outdoors
Lake/Stream Fishing
Hiking/Walking/Jogging
Swimming
Picnicking
Boating
Pleasure Driving
Camping
Bicycling
Jet Skiing
Photography
Historic Sites/Museum
ATV riding

*Note the data sample from 60 surveys may not reflect preferences in larger population of users.

3. Demands for Existing Activities/Facilities

According to statewide and regional surveys, day use activities such as walking for pleasure, pleasure driving, group use, picnicking, and wildlife viewing are consistently identified as the greatest recreational needs.

South Fork SRA visitor surveys express similar needs. In addition, more water-based activities are identified such as lake/stream fishing, swimming, boating, and jet skiing.

Applying Statewide and regional data to South Fork SRA we can see that users are asking for boating and fishing facilities and opportunities, group facilities, multi-use trails and trail connectivity,

The 2005 State Trails Plan survey found that those who participated in a motorized activity reported higher numbers of miles traveled, with averages between 35.81 miles for OHV riding, to 22.78 miles for ATV riding. Biking and

Equestrian use ranged from 8-11 miles or more. Hiking and running averaged 3-5 miles. This infers access to longer sections of trail (connectivity to BLM roads and trails) for equestrian use and facilities to park, load, and unload.

C. RECREATIONAL SUPPLY

1. South Fork State Recreation Area

South Fork State Recreation Area provides visitors with opportunities to engage in a number of outdoor recreation activities amid the scenic splendor of the majestic Ruby Mountains. Ranches of a bygone era and the Hastings Cut-Off of the California Emigrant Trail lend an historic air to the site. Existing developed facilities include:

- Hamilton Boat Launch: One dual lane boat ramp w/sled dock, parking area with trailer parking, restrooms and two picnic tables.
- Coyote Cove: boat launch ramp for boats less than 15 feet long, with three picnic tables.
- Jet Ski Beach: access for jet skiers, fishing, kayaking and other water activities. Dispersed undeveloped camping and picnicking. Currently two picnic tables with shelters; eight tables with grills; one picnic table with shelter for handicapped use only. It also includes two restrooms, and one cross-rail hitching post along West Shore Trail, a joint-use equestrian and hiking trail.
- Fisherman's Point Trail Head: Trailhead parking, restroom and hitching rail. Dispersed primitive camping along the southwest shoreline.
- The reservoir: Diverse fishing opportunities throughout, both boat and shore fishing.
- Tomera Campground: One campground with 25 individual campsites equipped with a parking space, picnic table and grill; an amphitheater, restrooms with showers, and waste disposal.
- Trails: 5.16 miles of multiuse hiking and equestrian trails with parking areas [See Trails Map, Appendix 2.1].
- Two Wildlife Habitat Management Areas.
- One Wetlands Mitigation Management Area.
- Tomera Ranch: Undeveloped day-use area.

Nevada State Trails Plan, 2005

Table 2.5
Characteristics of trails located in the South Fork State Recreation Area

Name	Miles	Use Category	Typical Grade	Average Width	Surface Type
South Fork Dam Gravel Road	0.77	1,2,3,6	1-5 %	>73 in	Aggregate
South Fork Dam Paved Road	1.44	1,2,3,6	1-5 %	>73 in	Asphalt
South Fork Dam Trail	0.35	1	1-5 %	< 36 in	Compacted Soil
West Shore Trail	1.20	1,2,3	1-5%	37-72 in	Compacted Soil

1-Hiking, 2-Biking, 3-Equestrian, 4-Skiing/snowshoeing, 5-Snowmobile, 6-Licensed OHV,

7- ATV, 8- Motorcycle, 9-Kayak/Canoe

The State Trails Plan identified four trail segments within the park totaling only 3.76 miles. (Table 2.5) All four trails are open to non-motorized use, two of which are open to licensed motorized use. Trail conditions are subject to winter weather extremes and those with heavy vehicular traffic often in need of maintenance.

Winter Use: As the winter months blanket the South Fork Recreation Area with snow cover, additional recreational opportunities present themselves. Popular winter activities include ice-fishing, snow-shoeing, cross-country skiing, and winter camping. Extreme cold and snow can close roadways and hamper access to and use of the park during parts of the winter, as can warmer temperatures, which inhibit solid ice formation on the reservoir and decreases ice fishing use.

Group Sites, Camping and Picnicking: The campground contains an amphitheater suitable for small groups. A new multi-use group use area proposed near the historic Landa Ranch site is being considered in this revision. Camping at South Fork continues to be popular with traditional tent camping in the designated area, as well as by trailers. Waterfront campgrounds are under consideration in response to visitor needs.

2. Regional Facilities

Whether during the snow blanketed winter months or the colorful remainder of the year, Elko County offers a wide variety of recreation opportunities for all ages and experience levels. Additional state and federal facilities in the region are the Humboldt-Toiyabe National Forests, Great Basin National Park, Wildhorse State Recreation Area, and the Ruby Crest National Recreation Trail. Recreation opportunities include mountain biking, hiking, rock climbing, horse-back riding, camping, historical tours and ghost towns, scenic driving, four-wheel off highway driving, hunting, stream, lake, and ice fishing, wildlife viewing, snowmobiling, sledding, alpine skiing, and cross country skiing.

Within Elko County, the Ruby Mountains and Ruby Lake, including the Ruby Crest National Recreation Trail, offer hiking, horse-back riding, camping, fishing, cross country skiing, and world renowned heli-skiing from the top of 9,000 foot summits. Within the majestic Ruby Mountains lies Lamoille Canyon which offers hiking, rock climbing, camping, snowmobiling, sledding, and cross country skiing.

The Wildhorse State Recreational Area offers mountain biking, camping, lake and ice fishing, snowmobiling, and cross country skiing. Some of the smaller regional recreation areas include Harrison Pass offering mountain biking, sledding, and cross country skiing, Soldier Basin offering hiking, fishing, and horse-back riding, Overland Lake offering hiking, fishing, wildlife viewing, and horse-back riding, and Angel Lake offering camping, fishing, and cross country skiing.

D. SUPPLY/DEMAND ANALYSIS

1. SCORP

The 2003 Statewide Comprehensive Outdoor Recreation Plan found that the population in Nevada grew by 66% from 1990 to 2000, the fastest percentage growth rate in the United States. Future projections indicate a continued growth in the state's population.

Elko County boasted a 35.3% change from 1990 to 2000. However, future projections indicate that the county's population could decrease over the next 25 years. However, due to the State's population increase, demand for outdoor recreation facilities in the area are projected to increase greatly.

Local Community Needs: The SCORP found that Nevadans cited parks/greenbelts, children parks/playgrounds, bicycling trails, soccer fields, and swimming pools and areas as the five outdoor recreation areas and facilities most needed in their local community.

The SCORP found that the top five things Nevadans age 16 years and older wanted to use parks for were walking (day hiking), family gatherings, view/photography, picnicking, and nature centers/historical sites.

Outside the Local Community Needs: The SCORP found that Nevadans cited fishing, camping, parks, hiking, and biking as the five recreational opportunities most needed ***outside their local community.***

South Fork SRA has always been a park "outside the local community" of the nearest population centers (Elko and Spring Creek). Although there is a rural and suburban population around the SRA, current population trends and projections indicate suburban development will increase.

The demands of users in and outside the local community are not being met according to public comments. Users have made numerous comments asking for improvements such as more camping, more trails, more picnic areas, and more facilities for boats.

2. Projected Numbers and Trends (Region Wide)

Access/Connector Trails: The 2005 Trail plan survey data acknowledged running, biking and off-highway vehicle (OHV motorized use) as significant current and projected uses/demands that must be considered in the planning process.

Adventure trails, long distance trail running and mountain biking are fast growing and demanding sports in Nevada (e.g., Xterra race, Wild Nevada and other large events) and throughout Nevada's extended marketing region of California, Utah, and other western states. OHV and all-terrain vehicle (ATV) riding as well should be considered in provision of access to connector trails.

Water Sports/Access: The most popular activities in the South Fork SRA revolve around the South Fork reservoir. Covering 1,650 acres and surrounded by 2,200 acres of recreational lands, the reservoir offers a myriad of recreation opportunities to the delight of its users. The most popular activities in South Fork include fishing (lake, stream, and shore), boating, water skiing, jet skiing, and other forms of water based recreation.

3. Impact on Park and Carrying Capacity and the Role of South Fork Recreation Area in Meeting Demand.

The current demand analysis for the SRA includes these priority activities:

- Reservoir Use and Access
- Trails, trail access and regional connectivity
- Group-use areas, both camping and picnicking

- Enjoyment of the outdoors and scenic views

Reservoir Use and Access: Nevada's outdoor recreation picture has a strong orientation to water resources. South Fork SRA, in particular, is receiving requests for the further development of existing access and facilities for boaters, fishermen, and family day-use. This includes requests for additional boat launch ramps and sled docks, importation of sand for the development of beaches, development of waterfront camping, and further development of picnic areas and other day-use facilities.

Trails, Access and Regional Connectivity: Existing equestrian and hiking trails within SRA are well used and expansion and renovation are underway. There is a need for improved vehicular (horse trailers) access to the equestrian trail at the south end of the reservoir. Regional connectivity to outside trail networks is needed such as the Hamilton-Bullion Trail, developed by the Elko Convention and Visitors Authority in 2004 as a mountain lake trail.

Picnicking continues to be a popular activity especially for day users at South Fork State Recreation Area. Current amenities are adequate around the reservoir during seasons of lower use. Additional sites are needed around the reservoir to fully accommodate use of South Fork as a picnic destination.

E. REGIONAL LAND USE TRENDS

1. Ownership and Land Use

Patterns and Trends - The land surrounding South Fork State Recreation Area and much of the land in Elko County is made up of a checkerboard pattern of private and public land [See Land Ownership Map, Appendix 1.2]. The Bureau of Land Management (BLM) and private owners own land adjacent to the SRA.

Additional holdings in the South Fork area include Native American Indian tribal lands. No evidence exists to indicate that the ownership patterns of the region will change. Evidence does exist to support changes in land uses however.

Land uses surrounding the park include residential housing of a rural nature, agriculture, and vacant land. Growth trends indicate a constant population over the next twenty years in the immediate area of South Fork SRA while the overall county population decreases. As the state population grows astronomically however, park usage will maintain its current levels or increase while land uses remain constant.

2. Zoning

Patterns and Trends - The zoning patterns around South Fork State Recreation still reflect the checkerboard pattern established by 19th century land grants to the railroads. The existing pattern is expected to remain very similar in the foreseeable future as the local and surrounding areas' growth rates stabilize.

3. Access/Transportation

Existing Access/Site Circulation

Automobile: The main thoroughfare through Elko County is US Interstate 80 which effectively bisects the City of Elko [See Circulation Map, Appendix 2.2]. US Interstate 80 is a primary transcontinental transportation route, connecting Elko to Salt Lake City, Utah and Reno, Nevada, as well as smaller population centers along the way. From the City of Elko, South Fork State Recreation Area is reached by traveling 7 miles south of Elko on State Route 227, 5.5 miles south on State Route 228, and 3.5 miles SW on Lower South Fork Road.

State Route 228 provides access to the developed facilities of South Fork State Recreation Area by way of Lower South Fork Road. Lower South Fork Road provides access to the Ranger Station, camp ground, boat docks, and to many of the roads leading to residences around the State Recreation Area. Networks of dirt roads navigate throughout the main park and provide access to the historic ranch site, interpretive areas, equestrian areas, etc. Weather conditions often limit travel on the dirt roads to four-wheel drive vehicles.

The primary circulation route within the SRA circles the reservoir giving the public access to the water and trails, the ranger station, camp ground, and the network of roads in the area.

Trails: Historic and recreational trails exist in and around South Fork State Recreation Area. The historic Hastings Cut-Off of the California Emigrant Trail, which passes through the Park, still exhibits old wagon-wheel ruts visible in the ground since pioneering days [See Trails Map, Appendix 2.1].

Equestrian and walking trails are independent of each other within the park. However, many connect with trails and unpaved roads outside of the recreation area. Many unpaved roads require four-wheel drive or are restricted to official state business only. Many of these unpaved roads also act as equestrian trails. Hitching posts for equestrian recreation are located at three points within the park [See Trails Map, Appendix 2.1].

4. Utilities

a. Water

Fresh ground water is provided through a well system. Water is pumped from a main well, stored in a water tower and gravity fed through distribution for domestic and mechanical agricultural irrigation service.

b. Electrical Power

Electrical power is provided to the South Fork area by Sierra Pacific Power Company (SPP Co.). A major transmission line runs along State Route 228. Another power line enters the park from the east and provides power to the park office, restroom and group use area.

c. Telephone Service

Telephone service is provided by Frontier Communications. The service line for the park enters from the south and extends to the park office. All basic telephone access is available in the park and in the surrounding area. Dial up Internet access is available.

d. Sanitation

Sanitation services provided in the park are through vault, septic tank and leach systems for each facility. Vaults and tanks are routinely pumped and serviced by local contractors.

e. Gas

Southwest Gas provides bottled propane gas to the South Fork area.

III. THE EXISTING PARK

A. NATURAL RESOURCES

This section provides an overview of natural resources in South Fork SRA. The information is from the 1984 plan by Design Concepts West, unless otherwise noted. The South Fork Natural Resource Management Plan contains additional details.

1. Physiography and Slopes

The South Fork State Recreation Area (SRA) lies within the Basin and Range Physiographic Province. Block faulting gave rise to north-south trending mountain ranges separated by intervening valleys. The South Fork Reservoir occupies a broad, fertile river valley lying between a low system of increasingly steep-sloped, overlooking terraces, gradually narrowing to enter the steep-sided canyon. The South Fork of the Humboldt River flows from the Ruby Mountains through the valley and canyon, generally from southeast to northwest, before emptying into the Humboldt River.
[See Slope Analysis Map, Appendix 3.1]

2. Climate

a. Temperature

The area of South Fork SRA has a semi-arid climate characterized as a mid-latitude steppe, with subzero winter weather and hot dry summer weather. January is the coldest month with an average high of 36°F and low temperature of 12°F, with August being the warmest month with an average high of 88°F and low of 47°F. The dry, clear air gives rise to high nighttime radiation and very large daily temperature ranges. Chilly nights are common, even in midsummer (National Oceanic & Atmospheric Administration, 2007).

b. Precipitation

Precipitation is light, averaging 9.6 inches annually, with the heaviest amounts falling as snow during the winter months. January has an average snowfall of 9.4 inches. The maximum monthly snowfall was 31.2 inches in December 1955, and the maximum 24-hour snowfall was 18.4 inches on January 24, 1996. Summer precipitation occurs mostly as showers and does not contribute much toward vegetation growth. Irrigation is necessary to sustain crops in the area. July is the mean low precipitation month with .30 inches. The record low precipitation month is

July 1963 with 0.00 inches (National Oceanic & Atmospheric Administration, 2007).

Most of the precipitation comes in the form of snow. In terms of winter sports use, South Fork SRA provides for winter sports such as snowmobiling and ice fishing.

d. Solar and Wind

The mean number of days with clear skies and full sunshine is 130. There are 99 partly cloudy days and 136 cloudy days. The prevailing wind direction is from a southwesterly direction and is heaviest in the spring and summer months. The mean yearly average wind speed is 6.0 miles per hour (Western Regional Climate Center, 2007).

The solar angle measures the altitude of the sun off the earth's surface. For park development, this angle is used to design shade structures that provide relief from the hot summer sun. At South Fork SRA, the sun angle at noon on June 21 (summer solstice) is 72.3° (US Naval Observatory, 2007).

In South Fork SRA, the actual number of days of sunshine is relatively low ranging year round from about 36% to about 52% in the summer (Western Regional Climate Center, 2007). Availability of sun in the winter and shade in the summer is an important issue regarding park use.

The climatologic information presented is interpolated from data gathered at the Elko Weather Station located at the Elko Municipal Airport, since November 1930. The South Fork project site is at the same elevation 16 miles southwest from the weather station. Local conditions may vary due to microclimate conditions.

3. Geology

This description of geology of the South Fork area summarizes information from the 1984 South Fork State Recreation Area Plan by Design Concepts West. The geologic history of eastern Nevada has included a period of occupation by a great sea with deposition of extensive marine sediments (600 million years ago); extensive uplifting and mountain building with complex folding and faulting (350 – 400 million years ago); a period of quiescence; mountain building with intrusion of igneous rocks into the older deposits (70 million years ago); and a period of volcanism and faulting. Present-day north-south trending mountain ranges and intervening valleys were formed by this Tertiary block faulting. The uplifted blocks resulted in mountain ranges, while dropped blocks resulted in valleys which have been partly filled with material eroded from the raised blocks.

Evidence of geologic activity that has taken place in the region can be found at the South Fork site. Just below the dam site in South Fork Canyon, fossiliferous limestone forms the majority of the canyon walls. Brachiopod and crinoid fossils, readily located in these limestones, date these marine deposits as 300 to 350 million years old.

Fault activity that created the present topographic configuration had its inception in the early Miocene epoch (past 15 million years). However, the region has experienced recurrent phases of regional deformation for more than 400 million years.

The oldest bedrocks in the vicinity of the site are sedimentary rocks that were deposited during the late Paleozoic era. In general, coarse-grained clastic rocks were derived from detritus shed from uplands to the west of the site, while fine-grained sediments and limestones were generally derived from eastern sources. Folding and faulting of the rocks occurred in Paleozoic time and continued through Mesozoic time. From late Mesozoic (Cretaceous) to early Tertiary time, numerous basins developed in the region, becoming the depositional site of lake and river sediments.

During Miocene time, block faulting formed the Basin and Range topography to essentially its present configuration. Deposition continued into these fault-bounded basins until through-flowing drainages began to provide drainage out of them in Quaternary time. Continued erosion of topographic highlands created extensive sand and gravel deposits that blanket much of the region, including most of the bluffs surrounding the reservoir area.

The project area generally consists of gently rolling terrain underlain with Older Terrace Gravels (Qg2). These slightly to poorly cemented stream gravels are present on both sides of the river valley and represent ancient boulder sizes with occasionally significant amounts of uncemented sand and silt. Occasional thin deposits of horizontally bedded sand and silt cemented with calcium carbonate (caliche) are present in the upper portions of this unit and form weather resistant caps as observed along the ridge top just east of the dam alignment. The deposit is derived from older bedrock units in the vicinity and from the Ruby Mountains to the east.

Other geologic deposits found within the project area are described as follows.

> Recent Stream Channel Alluvium and Flood Plain Deposits (Qal)
> The level valley floor is underlain by deposits of silt, clay, sand, and gravel. The upper few feet consist of dark brown organic sandy silt or clay which is generally soft, with occasional well-rounded gravels up to cobble sizes.

Slope Wash Colluvium and Talus (Qc)
This unit, found in drainage depressions adjacent to the valley floor, consists of slope-wash alluvial fan and ravine-fill material. The material generally consists of sandy silt with variable amounts of rock fragments derived from adjacent slopes underlain by bedrock or older superficial deposits. Deposits of talus, consisting of predominantly angular fragments of rock adjacent to steep slopes are present only in a few locations at the west end of the reservoir in the vicinity of the dam and downstream from the dam where steep-sided canyon walls are present.

Younger Terrace Gravels (Qgl)
A near-level bench along the south side of the main valley floor consists of horizontally bedded well-rounded gravels. This deposit may be as much as 35 feet thick towards the west end and consists of well-rounded gravels, cobbles and boulders, with minor amounts of sand and silt. In many cases, the terrace gravels are slightly cemented with carbonate.

Humboldt Formation (Th)
The Humboldt Formation is present along the steeper bluffs in the southeast portion of the valley where horizontally bedded sediments are well pronounced along the steep slopes. This formation consists of poorly consolidated deposits of sand, silt, and gravel.

Bedrock – Tertiary Undivided (Tp)
Located in the vicinity of the north abutment, this unit consists of conglomerate, sandstone, siltstone, and limestone. The conglomerate is generally massive, and contains mostly well-rounded pebble clasts of chert and quartzite. This unit weathers to a characteristic red color with abundant clay derived from the conglomerate matrix and associated interbeds of sandstone and siltstone.

Bedrock – Tertiary Eocene (Tcl)
This unit of Tertiary bedrock is present only downstream of the dam alignment and consists of predominantly limestone conglomerate with pebble- to boulder-size clasts of limestone. Outcrops are generally well-rounded and massive containing occasional calcite veining.

Bedrock – Permian – Upper Pennsylvanian Undivided (PPu)
This bedrock unit is found on the right abutment of the dam site and underlies the dam alignment. This unit consists of thin-bedded calcareous siltstone and sandstone which weathers to characteristically yellow and tan fragments. Occasional interbeds of limestone, dolomite and conglomerate are common.

Bedrock – Diamond Peak Formation (PMd)
The Diamond Peak Formation is present underlying the hills on the south side of South Fork Canyon. The formation consists of chert and quartzite conglomerate with well-rounded clasts ranging in size from pebbles to boulders. Occasional interbeds of sandstone, marl, and shale are present.

The Basin and Range province is a seismically active region. According to the earthquake epicenter map of Nevada (UNR 1999), thirteen earthquakes with magnitudes of 4.0 to 6.0 (Richter Scale) have originated within Elko and adjacent parts of Eureka counties in the vicinity of the SRA. The largest historic earthquake within a 100-mile radius of the dam site was the 1915 Pleasant Valley earthquake of an estimated Richter magnitude 7.8, about 90 miles west of the site. The length of the fault rupture was estimated at between 10 and 30 miles.

According to the Seismic Zone Map contained in the Uniform Building Code, South Fork SRA lies within seismic zone 2. Zone 2 has a potential for moderate damage resulting form earthquake intensities of about VII on the modified Mercalli intensity scale. Higher level seismic zones corresponding to Zone 3 are located in close proximity to the west in central Nevada, and to the east in Utah.

Several faults have been inferred within the South Fork area, particularly on the basis of detailed geologic work at the dam site. All the faults are in bedrock and concealed beneath younger consolidated deposits. The lack of topographic irregularities above these inferred faults suggested that the faults are seismically inactive. A potentially active fault has been reported along the south side of the valley about one mile southeast of the dam site. Apparently its location is based on the relatively straight alignment of the valley side. Observations by did not disclose any surface scarps or topographic irregularities along the mouths of the tributary streams which would be indicative of an active fault.

4. Water Resources

a. Watershed/Streams

The South Fork of the Humboldt River, a main tributary to the Humboldt River drainage basin, originates in the Ruby Mountains and flows into the Humboldt River west of Elko. The watershed area above the dam site is approximately 936 square miles. The upstream mountainous terrain results in the accumulation and run-off of large amounts of precipitation. The average annual precipitation for the area is 9.6 inches per year; the high mountain ridges may reach 40 inches per year [See Hydrology Map, Appendix 3.3].

River flows fluctuate both seasonally and year to year depending on rain fall and annual snow accumulation. Flows are generally highest from April to late June although warm storms between December and March can also cause high flows and flooding. Flows are lowest in July, August, and early September. The average annual runoff above Dixie Creek for thirty-three years of record (1971-2000) is 76,000 acre-feet and the probable runoff is 85,000 acre-feet. The recorded annual flows range from 20,203 acre-feet (1959) to 164,000 acre-feet (1975) (California Nevada River Forecast Center 2002).

b. Impoundments

South Fork Reservoir has a capacity of 40,000 acre-feet. The selection of this design capacity was based on the estimated excess water volume available from the upper Humboldt drainage system and the water rights for recreational use. The dam was not designed for significant flood control storage or irrigation impoundment. There are no impoundments upstream of the South Fork Reservoir. Downstream the Pershing County Water Conservation District operates the Rye Patch and Pitt-Taylor Reservoirs for irrigation storage and flood control.

c. Water Rights

Water rights pertinent to the South Fork of the Humboldt River are defined in the Humboldt River decree which was finalized in 1938. The Nevada State Engineer is responsible for allocating the waters from the South Fork stream system through a district office located in Elko.

Priorities of use are determined by flows of the Humboldt River at a United States Geological Survey (USGS) gaging station located at Palisade, Nevada. Dates of priorities of water use range from 1861 to 1921. Priorities are served during a particular water year by correlating a river flow volume at Palisade with the priority date from the Humboldt River priority chart.

On January 24, 1969, the Elko Recreation Board filed Application 24881 to store surplus waters of the South Fork of the Humboldt River. On May 20, 1970, the State Engineer ruled that surplus water was available in the Humboldt River Stream System, and issued to the Recreation Board a storage permit for 120,000 acre-feet per annum, subject to prior rights.

Other potential water rights available for storage in South Fork Reservoir include the rights under Proof No. 00359 of the Humboldt River Decree, which was acquired with the purchase of the Edward Tomera and Julian Tomera ranches. These combined rights total approximately 5,190 acre feet per year. To the extent these rights are in priority, they may be

available for storage during the irrigation season beginning March 15 of each year.

d. Irrigation

South Fork SRA has two simple drip-irrigation systems for landscaping – one in the park office/shop area and one in the developed campground.

5. Soils

a. Description

Six soil units appear within the boundary of the South Fork SRA. (Soil Data gathered from USDA Natural Resources Conservation Service, May 1st, 2007)
[See Soils Map, Appendix 3.4 and Soil Limitations, Appendix 3.9]

Map Unit: 206 – Hopeka-Gina-Izod Association

Component: Hopeka (40%)
Component: Grina (30%)
Component: Izod (20%)

Map Unit: 228 – Enko-Kelk Association

Component: Enko (60%)
Component: Kelk (30%)

Map Unit: 490 – Orovada-Bioya-Haybourne Association

Component: Orovada (35%)
Component: Bioya (30%)
Component: Haybourne (25%)

Map Unit: 491 Orovada-Puett Association

Component: Orvada (50%)
Component: Puett (35%)

Map Unit: 839 – Woofus-Tweba-Devilsgait association

Component: Woofus (40%)
Component: Tweba (30%)
Component: Devilsgait (15%)

Map Unit: 972 – Izod-Porrone-Chiara Association

Component: Izod (35%)
Component: Porrone (30%)
Component: Chiara (20%)

b. Constraints

The erosion hazard is “moderate” (water) and “slight” (wind) for project soils within the Orovada-Puett association, “slight” (water and wind) for the Woofus-Tweba-Devilsgait association, “slight” (wind) for the Orovada-Bioyor Haybourne association. Surface erosion in the form of sheet, rill and gully erosion is typical to this site. The most pronounced surface erosion occurs on the slopes of old alluvial fans located between Ten Mile Creek and the South Fork. Sheet erosion to gullying is prevalent throughout the area. Raw cutbanks, sandbar deposits, and abandoned oxbows have been created by the repeated flooding of the area. Tributary channels also show signs of active erosion, including downcutting, bank slumping, and deposition of fresh angular coarse debris. Debris of this size is probably associated with the occasional intense summer thundershowers that occur in the area, and is characteristic of areas with semi-arid climates. There is no evidence of mass wasting in the form of slides, flows, avalanches, or creep apparent on the project site.

Limitations due to soil constraints have been identified by the USDA for site uses most relevant to South Fork SRA development planning: 1) Paths and trails, 2) camp areas, 3) picnic areas, and 4) septic tank absorption fields. The USDA rates limitations on a value scale from 0 to 1.00, where 0 equals not limited while 1.00 equals very limited, (See Appendix 3.9 for details) based on a series of limiting features, for example, depth to bedrock, slope, flooding, water movement, depth to cemented pan, or gravel content.

All six units identified within the SRA are somewhat limited to very limited for the four uses. Units 206 (Hopeka-Gina-Izod Association) and 972 (Izod-Porrone-Chiara Association) represented the least amount of potential development as all uses are very limited. Unit 491 (Orovada-Puett Association) was the second most limited as paths and trails were somewhat to very limited for development while the other three uses where very limited. Unit 839 (Woofus-Tweba-Devilsgait association) represents greater potential for development being somewhat limited for trails and picnicking but also being very limited for camping and septic systems. Unit 490 (Orovada-Bioya-Haybourne Association) represents even greater potential for development being somewhat limited for trails, camping, and picnicking while being somewhat to very limited for septic

systems. Finally, Unit 228 (Enko-Kelk Association) has the most potential for future development by being suitable for trails, somewhat limited for camping and picnicking, and very limited for septic systems.

6. Park Ecology

The South Fork SRA lies in the Great Basin Eco-region of the United States. The Southwest Regional GAP Project (USGS 2006) identifies twelve land cover descriptions in the SRA [See Vegetation Map, Appendix 3.5].

a. Wildlife Habitat Management Areas

The park contains several Wildlife Habitat Management areas on the northwest side of the park below the dam and in the southeast end above and below the causeway [See Management Areas, Appendix 3.6].

The Aquatic zone includes the reservoir and the river above and below the reservoir. These waterways support a variety of game and non-game fish, freshwater shrimp, crayfish and other aquatic species as well as migratory and non-migratory birds. There are no known threatened or endangered aquatic species in these waters (NDOW, 1/2007, Natural Heritage, 12/2006). Fish species include catfish, small and largemouth bass, rainbow trout, blue gill, brown trout, and native cutthroat.

Great Basin Foothill and Lower Montane Riparian
These floodplain/river terraces were historically used as grazing meadows and produced alfalfa and native grass for grazing. Livestock were removed from the park in 1989. Today, vegetation consists of mixed associations of herbaceous forbs, grasses and shrubs. This area is highly threatened by noxious weed infestations. Weed control and reestablishment of the native vegetation has been a priority management focus in this area. Willow communities are making a comeback along the stream channels with woods' rose as a secondary component. Presence of the woods' rose as a strong component of the plant composition coupled with high weed composition is indicative of past widespread disturbance and compaction by livestock.

The riparian woodland component of this habitat type is poorly represented in low-lying, moist areas along the edges of the reservoir and along the River in the North and South Wildlife Habitat Management areas [See Management Areas, Appendix 3.6]. Potential habitat includes Fremont cottonwood galleries, willows, rushes and sedges, and wetland/riparian grasses such as saltgrass and others which should typify this vegetative community type. The vegetation here is dependent on the course of the river and the water table level. Livestock grazing has been removed from these areas and with intense weed management, these

riparian woodland areas can be restored and increased in size. This zone includes the dense vegetative corridor following waterways.

This community type along the river is rich in species diversity, and most wildlife of the park frequent this zone at some point of their life cycle. Waterfowl include redhead and cinnamon teal and shorebirds such as long-billed curlews and willets. Bald and golden eagles and other raptors are present, as well as migratory songbirds like the yellow-breasted chat. These areas are heavily used by Rocky Mountain mule deer herds. Other mammals include bobcats, mountain lions, weasels, coyotes, badgers, owls, and fox. Elk have also been sighted in the area above the causeway in the south Wildlife Habitat Management Area. Merriam turkeys have been introduced into the area by the Nevada Department of Wildlife (NDOW).

Inter-Mountain Basins Big Sagebrush Shrubland/Steppe
The majority of the park is encompassed by the Inter-Mountain Basins Big Sagebrush Shrubland/Steppe. This community type encompasses the majority of the park outside of the Wetland Mitigation and Wildlife Habitat Management Areas.

Part of the Big Sagebrush/Sandberg Bluegrass community in the northwest area of the park is an old crested wheatgrass seeding. Shrubs are sparse in the area but are returning. Cheat grass (*Bromus tectorum*) was a component of the understory in all areas of the park beginning in the 1970s during the inception of the park and continues to be a problem today. Black greasewood, rubber rabbitbrush, and Great Basin wild rye are also present as secondary components in the vegetation community. Serviceberry occurs in small patches on the slopes.

These areas are most susceptible to catastrophic wildfire as they exhibit a fairly contiguous brush canopy with an understory of highly flammable cheat grass.

b. Wetland Mitigation Management Area

North American Arid West Emergent Marsh
Emergent marsh types are included in both the Wetland Mitigation Area, as well as sections of both the North and South Wildlife Management areas. Cattail, bulrush (*Scirpus* sp.) and a variety of grasses occur in this community. Current management here is done in partnership with NDOW and includes weed eradication and nesting platforms.

c. Regional Significance of Park Habitat

South Fork SRA provides an important link for terrestrial, aquatic and particularly migratory bird species. The wetland and aquatic habitat has regional significance second to the Ruby Mountain wetlands in size in the region. Weed infestations are the greatest threat to these habitats.

d. Noxious Weeds

There is a weed management plan in place for the SRA. Funding with grants and operation dollars allow for protection of the valuable water and recreation resources in the park.

Figure 3.1

Tamarisk

http://www.extension.umn.edu/projects/yardandgarden

Tamarisk

All areas within South Fork SRA have some degree of tamarisk (See Figure 3.1) infestation including: numerous coves on the north side of the park, both cove areas north and south of the Main Campground, Hamilton Boat Launch at Hastings Cove, north and south of the Tomera Ranch site, Wetlands Mitigation Area, and Fisherman's Point.

In the last five years control of tamarisk has been focused on the Hunter Island in the Wetlands Mitigation Area and in the Fisherman's Point area. Approximately 600 tamarisk in the three - to five-year age range have been removed. Growth of tamarisk is highly dependant upon the water level of the reservoir. In drought or lowered reservoir water conditions, tamarisk flourish. High reservoir water levels inhibit the tamarisk population and spreading by drowning younger saplings.

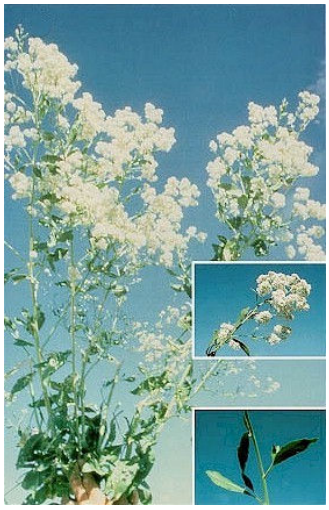


Figure 3.2

Tall White Top

Tall White Top http://www.co.tooele.ut.us/images/Weed/TallWhite.jpg

Tall White Top is the dominant noxious weed species within South Fork SRA (See Figure 3.2). In the past five years, infestations have increased significantly. The main reason is the five-year drought: lowered water levels have allowed Tall White Top to flourish in shoreline areas that should be inundated with water. In the past five years, South Fork Reservoir has lost 10 vertical feet in elevation. This area between the present water level and the high water mark is where the majority of Tall White Top growth is occurring. Beginning in 2005, treatment occurred north of the Tomera Ranch, and in the Fisherman's Point area.

The greatest areas of concern are the meadow areas south of the causeway. This approximately 100-plus acre site is currently estimated to contain 45% Tall White Top, 30% other noxious or nuisance weeds and 25% native grasses. The percentage of native grasses will continue to decrease, while the percentage of Tall White Top will increase. Funding in the amount of $1,000.00 was received from the Mule Deer Foundation to purchase native grass seed. Meadow areas south of the causeway and areas of high visitor usage are being treated with herbicide, mowing and reseeding with a range-drill.

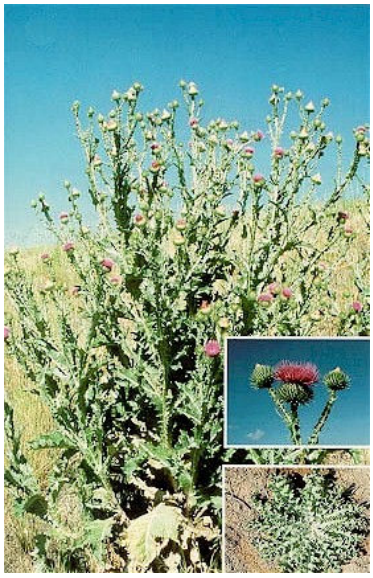


Figure 3.3

Thistle

Thistle

In 1999, an approximately five-acre patch of thistle (Figure 3.3) existed just north of the Tomera Ranch site. In 2002, this patch was mowed and treated with herbicide, and musk thistle was mostly eradicated. Unfortunately, the patch, which was untreated for most of 1999-2001, dispersed a large number of seeds down the north side of the shoreline.

Herbicide spraying predominantly in high visitation areas and the West Shore Equestrian Trail area is used to control out breaks. These remnants are still being treated. If diligence is not used, and this area is not monitored, thistle species will return. Thistle species include Canadian, Scotch, and Musk. As of Fall 2006, all rehabilitation work has been accomplished on areas treated for thistle. The main priorities remaining are treatment and rehabilitation of the meadow areas south of the causeway and areas of high visitor usage.

Spraying efforts have been coordinated with Tall White Top treatment. Both species can be sprayed using the same herbicide mixture. Spraying is ongoing and is the same as Tall White Top.

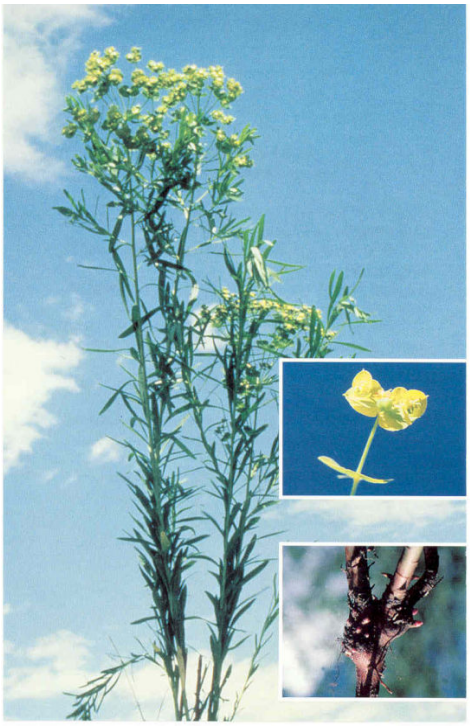


Figure 3.4

Leafy Spurge

http://www.co.morton.nd.us/vertical/Sites/%7B90CB B59C-38EA-4D41-861A-

Leafy Spurge

Small infestations have occurred. The area of concern is south of the causeway in old meadow areas along the Humboldt River. This area needs to have an extensive field survey completed. No present infestations have been found in areas where Tall White Top and Thistle have been sprayed. Monitoring will continue. The areas most likely to become infested by Leafy Spurge are the same areas already infested with Tall White Top and Thistle species. Monitoring and immediate treatment will occur if Leafy Spurge is found.

Other noxious weed species that could possibly invade include Spotted Knapweed, Yellow Star Thistle and Russian Knapweed. Nuisance weeds include Halogeton, Curly Dock, Common Ragweed, Tumble Mustard, Russian Thistle, and Western Stick tight. All of these species are present, and dealt with as needed.

Spraying efforts are on going and have been coordinated with Tall White Top treatment. All current noxious species can be sprayed using the same herbicide mixture.

e. Impacts of Wildlife on Park Resources

There are obvious and continuing detrimental impacts from beaver activity on cottonwood trees and willows along all riparian areas. Mortality of

seedlings and saplings exceeding 90% has been estimated in most years. Deterrents will be necessary in restoration of these habitats.

f. State and Federally Listed Species

The Division of Natural Heritage, Nevada, reported no listed plant species occurring in the planning area. There are occurrences of Pygmy rabbit *Brachylagus idahoensis*. Pygmy rabbits are present within the boundaries of the South Fork SRA.

This species is State Listed S3 in Nevada, where "S" is the State rank indicator, based on distribution within Nevada at the lowest taxonomic level, and "3" means "vulnerable to decline because rare and local throughout its range, or with very restricted range" (Nevada Natural Heritage Program, 2007).

The rabbit is a species of concern with the U. S. Fish and Wildlife Service. Sightings were officially recorded in 1997 and 2003. Park personnel reported sightings in 2006.

The most important components of habitat in the South Fork SRA are the large expanses of sagebrush/mixed shrub community types. Pygmy rabbits are herbivorous grazers that eat mostly sagebrush (*Artemisia* spp.). During winter months their diet consists of up to 98% sagebrush. In the summer and spring months their diet becomes more varied, including more grass and new foliage. Plant forage includes leaves; roots and tubers; wood, bark, or stems; seeds, grains, and nuts.

Protection from catastrophic fire threat is important. South Fork SRA lies within a comparatively extensive area of habitat in the surrounding BLM lands. The acreage in the park itself does not hold any significant habitat features that do not exist in the expansive public lands surrounding the park. Therefore, there is no regional significance in habitat within the park for this particular species.

7. Perceptual

a. Scenic Attributes

South Fork State Recreation Area encompasses three contributions to its scenic quality. First, the reservoir itself, with its wetlands and beaches, creates a picturesque setting augmented by the meandering South Fork of the Humboldt River to the north and south. Secondly, the majestic Ruby Mountains create an impressive backdrop with rolling hills making up the middle ground and completely encompassing the reservoir. Finally the

northern Nevada vegetation, primarily consisting of sagebrush, the State flower, adds to overall sense of place within the State Recreation Area.

Distracting from the outdoor experience are manmade elements such as the Western Hills subdivision on the northern horizon and Lucky Nugget I and II. The park infrastructure itself creates a minor distraction from the overall scenic quality of the outdoors by means of the administration office, water towers, etc.

b. Sound Scapes

Sounds from State Route 228 are more likely to be heard at points along the eastern shore. Sounds from vehicular traffic along Lucky Nugget Road can be heard along the western shore. Sounds from boating, jet skiing and other visitor activities intrude on natural sounds year-round; hunting contributes noise during hunting season.

In the Wildlife Habitat Management Areas, more background sounds can be heard, including birds and other wildlife, wind rustling leaves, and so on. In these areas, visitors are limited, the stillness is less broken by passing vehicles, and sounds from water recreation are less noticeable.

Subdivisions and other private development along the western and northern shores of the reservoir detract from the scenic quality of the Recreation Area. They contribute sounds and potentially add smells that may detract from the outdoor experience. Currently there are no windbreaks or visual screens of vegetation along the areas between the park and the subdivisions to mitigate impacts.

c. Spatial Patterns

At present, developed recreational facilities are clustered along the northeastern and western shorelines. The campground, dual boat launch, and dam parking are located along the northeastern shore. A few private homes lie just outside the park boundary in this area and their location is in direct line-of-sight from the park. The West Shore, Jet Ski Beach, Coyote Cove boat ramp, and Fisherman's Point facilities line the western shoreline. Private development outside the Recreation Area boundary lines most of the western shoreline.

State Route 228 is not visible from most areas of the park, while Lucky Nugget Road is visible from most of the West Shore.

Except for the private developments, land surrounding the Recreation Area is managed by the U.S. Bureau of Land Management. These lands are not developed and at this time provide no distraction.

B. CULTURAL RESOURCES

This section provides an overview of cultural resources in South Fork SRA. See the South Fork Cultural Resource Management Plan for greater detail.

This description of cultural resources for South Fork area summarizes information from the 1984 South Fork State Recreation Area Plan by Design Concepts West.

1. Archaeological

During the fall of 1983, Archaeological Research Services (ARS) conducted an intensive archaeological survey of the proposed project site. Their investigations were assisted by a previous preliminary evaluation of site by an archaeologist researching northeastern Nevada. From these prior efforts, twenty-six sites were identified within the general area of the project. The ARS survey found and recorded three historic ranches and 46 prehistoric sites. Some of these prehistoric sites were also recorded in the earlier site findings [See Cultural Resources, Appendix 3.7].

Sites were judged as highly significant on the basis of four general criteria: (1) rare or unexpected site types in good condition; (2) sites with intact subsurface remains; (3) sites of historic or cultural importance to Native Americans; and (4) sites of historic importance to the local residents of the regions. Several sites were judged by ARS to be highly significant according to one or more of these criteria.

Construction of the dam and reservoir generated both direct and indirect adverse effects on many of the sites. The direct effects ranged from partial or complete destruction of sites to total inundation of sites by the reservoir. Partial and gradual destruction of some sites has occurred at the draw-down portion of the reservoir where water action along the shoreline caused erosion. The indirect effects are largely due to artifact collecting by park visitors. Additionally, another major indirect effect resulted from the loss of sites from the project area that are important to other archeological sites in the drainage basins of the South Fork of the Humboldt River and Tenmile Creek.

2. Prehistoric

Existing archaeological information about the reservoir region indicates that the presumed earliest inhabitants were Paleo-Indians (11,000-12,000 years ago). While no Paleo-Indian sites are known in the area, their major characteristic was that they were primarily big game hunters.

During the same time period, there were people in the Great Basin who used various types of large stemmed points. Archaeologists proposed the name of “Western Pluvial Lakes Tradition” for the flaked stone artifacts, and associated

the users of these artifacts with the Proto-Archaic stage. The Western Pluvial Lake Tradition represented a hunting–foraging economy practiced by people who may have camped on or near the shores of receding lakes and along rivers much of the time. Data from the few excavated sites demonstrate the use of small mammals and freshwater shellfish as well as large game by these people.

The Archaic stage, which began about 6,000 years ago, was a long and highly successful period of adaptation to the Great Basin environment. Commonly divided into two or three time periods by changes in subsistence, material culture or settlement patterns, people of the Archaic stage ranged from sedentary villages in the Owens Valley to small hunting groups that foraged over a large territory. Archaeologists postulate a settlement pattern adapted to a foraging/collecting economy, often consisting of a winter base camp, sometimes a secondary summer base camp, and numerous small temporary camps. The arrival of Euro-Americans brought the Archaic stage to an end. However, the presence of Archaic people is commonly associated with ancestors of the Western Shoshone and other Numic-speakers.

The Western Shoshone's presence in the area has been postulated by linguists to have resulted from a rapid spread of Numic-speaking peoples from the southwest. These people have inhabited regions surrounding the SRA since approximately 1,000 years ago until the present time. Throughout the Great Basin, Numic-speaking groups such as the Western Shoshone were known to use various techniques to modify wild plant harvests in addition to hunting and gathering.

Today, a branch of the Te-Moak Western Shoshone reside eight miles from the project site on the South Fork Indian Reservation. While other Te-Moak Shoshone communities are found throughout northeastern Nevada, the South Fork community is the closest in proximity to the SRA. Representatives of the community working with the project archaeologist were instrumental in locating sites of historical and cultural significance.

2. Historic

The first white men to see any portion of what is now Nevada were a company of some forty trappers led by the noted mountaineer, Jedediah Smith in the 1820s. That expedition route was through a portion of what is now western Wyoming, down the Humboldt River to the Walker River country and out through what is now known as Walker's Pass and into Tulare Valley, California. During this time the Hudson Bay Company claimed the region between the Rocky and Sierra Nevada Mountains as their exclusive grounds for trapping.

Peter S. Ogden began trapping the region in 1831 and traveled down the Humboldt River (known as Mary's River) following the same route as Smith.

Capt. B.L. Bonneville and Joseph Walker also took trapping and exploration trips into Nevada and traveled the area around the Humboldt River during the 1830s.

In 1833 Christopher (Kit) Carson, along with a Hudson Bay Company expedition, also visited the region of the Humboldt River. These were the first explorers who opened the way across the continent through the Great Basin to California. They were followed by emigrants who sought the western coast as their home.

The first emigrant party to cross Nevada passed through the site in 1841. The Bidwell – Bartleson party crossed the Ruby Mountains at Harrison Pass and proceeded down South Fork Canyon to the Humboldt River Valley. This trail (later known as the Hastings Cut-Off of the California Emigrant Trail) was also used in 1846 by the Reed-Donner party. Ironically, almost thirty days travel time was lost, sowing the seeds for the disaster which overtook them in the Sierras in December of that year.

In the Fall of 1868, the Elko-White Pine Toll Road (also known as the Hamilton Toll Road) was built during a boom period in the White Pine Mining District. Passing through the site, the road ran southwest from the old Denver Bridge, over the Humboldt River just west of Elko, to Twin Bridges and then south along the west side of Huntington Valley in route to Hamilton. The owners, George Sheperd and Frank Denver, had a monopoly over wheeled, horseback and pack train traffic for about six months, until the rival Gilson Toll Road was completed. In August 1882, Elko County purchased the Elko-White Pine Toll Road and made it a public highway. Horse changing and overnight stations were built at intervals along the toll roads. Perhaps the most famous was Shepherds Station at Twin Bridges, adjacent to the SRA site. Shepherds Station included a stage station, hotel, bar and dining room. Located just 12 to16 miles from Elko, it soon became the place to go for parties, balls, New Year's and Christmas galas, etc. There is some evidence of the presence of a stage station at the Edward Tomera Ranch as well. The structure is reported to have burned down in 1928.

In May 1869, Articles of Incorporation were filed for the South Fork Wood Rafting Company, "for the purpose of rafting logs, timber, lumber and wood on the South Fork of the Humboldt River". According to an article in the Elko Independent on July 17, 1869, the company was engaged in clearing and preparing the South Fork channel for log drives, little else apparently ever came of this enterprise.

The three historic ranch complexes cited in the archaeological report have had agricultural activities since before the turn of the century and serve as examples of Western U.S. ranching history. Since all three ranch areas were either partially or completely inundated by the proposed reservoir, steps were taken to preserve ranch historic structures, farm implements/equipment and other memorabilia for future interpretive use.

C. SITE ANALYSIS MAP/SUMMARY

The Composite Site Analysis determines the areas most developable. This analysis is based on the following criteria:

a. **Development Limitations** - Areas considered sensitive or hazardous to development were identified. Slopes (over 7%) will not be developed. Along the edge of the reservoir, slopes over 12% are not considered suitable for boat launches and those over 3% are not considered suitable for artificial beaches. Therefore most of the recreation management area has limitations. Development within the North and South Wildlife Habitat Management Areas is limited primarily to hiking and equestrian trails. There is no public motorized access beyond designated parking areas. Development of facilities within the Wetland Mitigation Area is limited to shoreline access and day use facilities. [See Slope Analysis, Appendix 3.1; Management Areas, Appendix 3.6; Composite Site Analysis, Appendix 3.8]

b. **Development Opportunities** – Slopes under 3% at the edge of the reservoir provide extremely limited opportunities for development of artificial beaches primarily along the West Shore in the general vicinity of the Wetland Mitigation Area. Slopes of about 12% are suitable for upgrading and expansion. [Composite Site Analysis, Appendix 3.8; Slope Analysis, Appendix 3.1; East and West Shore Development Areas, Figures 3.4 and 3.8]

D. CURRENT CONDITION OF THE PARK, 2006

1. SUMMARY

The 1984 South Fork State Recreation Area Plan anticipated the development of South Fork Reservoir. The project was conceived as a year-round recreational facility to fulfill a growing demand for water-based outdoor recreational opportunities. After construction of South Fork Dam and filling of the reservoir, the Nevada Division of State Parks built boat launching, picnicking, camping, visitor center, and sanitary facilities for visitors that number over 100,000 per year. A system of roads and trails provide access into the Recreation Area. The 1984 Plan called for conversion of the surviving Edward Tomera ranch house into an interpretive center. Rising groundwater levels destabilized the foundation of the ranch house and forced its demolition.

Interpretative Planning

2. MANAGEMENT AREAS

Four management areas at South Fork State Recreation Area include the Recreation, North and South Wildlife, and wetland mitigation areas [See Management Areas, Appendix 3.6].

a. Recreation Management Area

The Recreation Management Area encompasses all parts of South Fork State Recreation Area not set aside for wildlife management or wetland mitigation.

East Shore Development Area (Figure 3.5)

To date most development has occurred along the upland terraces and bluffs adjacent to the eastern shoreline of the reservoir, as proposed in the 1984 Plan. This area was selected as the prime development area because of its ease of control, from Lower South Fork and Dam roads, isolation from the larger residential subdivisions, accessibility to the shorelines, and favorable conditions for recreational development. The development area was projected to include a day use boat launch, group overnight camping area, equestrian area, operation and maintenance center, ranger residence area, trailer dump station, and fisherman's parking area. The ranger residence and group overnight camping area have not been developed as of 2006.

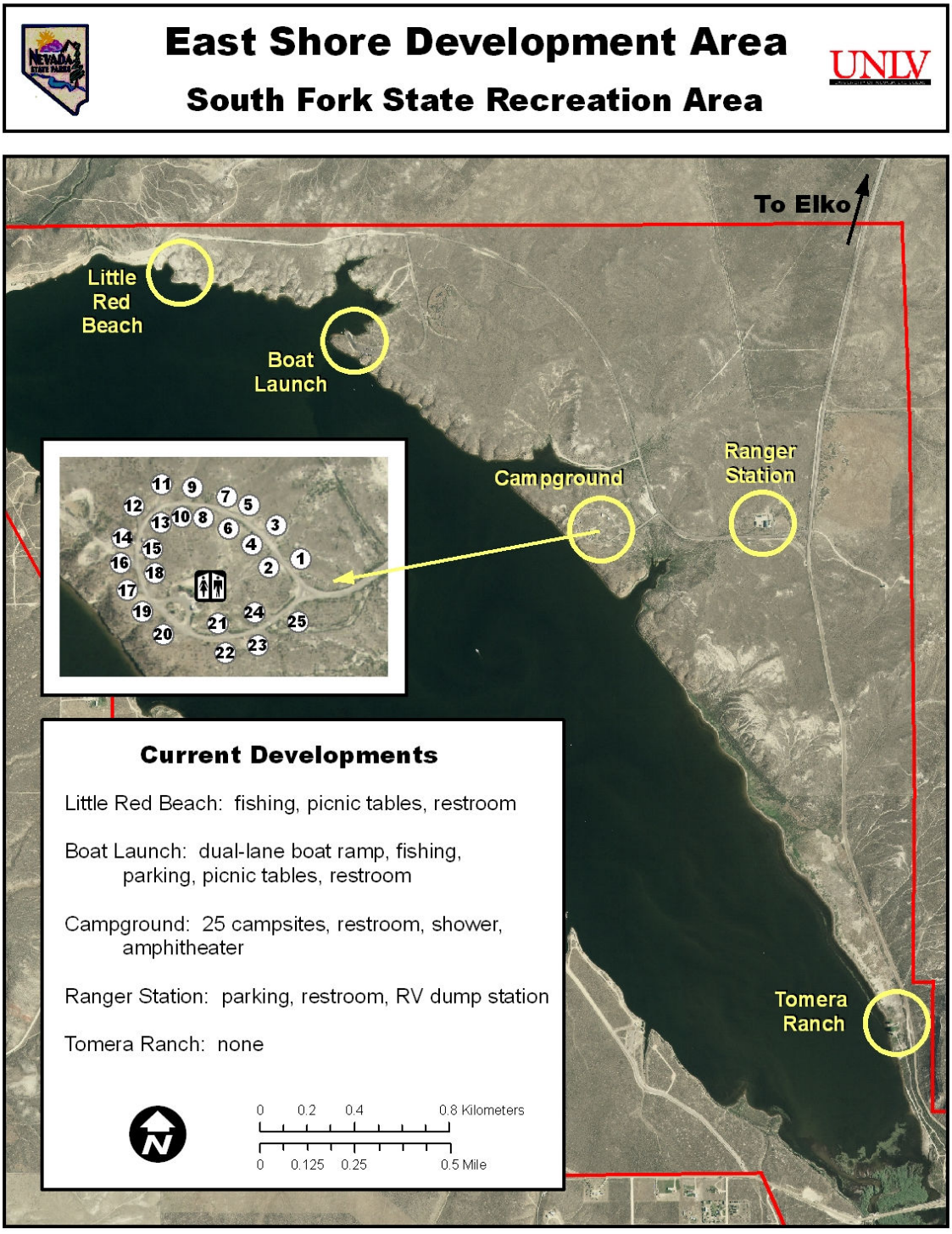


Figure 3.5 East Shore Development Area

1. Hamilton Boat Launch. A dual lane boat ramp with sled dock was constructed at the north end of the reservoir in Hastings Cove,

which is protected from prevailing winds by a low bluff. (Figure 3.6) The dock extends into a channel to provide access to the reservoir at a minimum elevation of 5,200 feet. The area houses two picnic tables, a non-flush restroom, and pull-through and diagonal parking for about 45 vehicles. There is access to the water for fishing. A nearby area across the cove provides beach access for fishing, two picnic tables and a temporary restroom. The 1984 Plan called for two additional boat-launch lanes with a second movable dock to be built at a later date.

Figure 3.6

Dual-lane boat ramp with sled dock, East Shore

Slopes in the boat-launch area aver
for boat launches. The 1984 Plan described the area around the cove as having potential for development as a marina concession. One or two day-use group pavilions, additional parking, and possibly a constructed sandy beach have also been recommended. Vehicular access to the shoreline is being prevented for safety reasons and for resource protection.

Figure 3.7

Typical campsite

2. Campground Area. A 25-site campground is located off the North Park access road. Facilities at each individual campsite include a campsite table, a gravel parking space, and a grill (Figure 3.15). The site is equipped with a permanent flush restroom and shower facility. A small amphitheater completes the campground amenities. The campground is open from May to November 15th.

Figure 3.8

Edward Tomera Ranch Area

3. Edward Tomera Ranch Area. The 1984 Plan proposed facilities in the ranch area that included an entrance contact station, a ranch house interpretive center, a day-use family picnic area, a day-use beach area, parking, and tree nursery. After the loss of the ranch house due to rising groundwater levels, all development in this area was postponed until further planning could be done. Power and water are available to the site (Figure 3.8).

4. Park Office/Ranger Station and Maintenance Center. A small ranger station with offices and a public flush restroom was constructed at the park entrance. The office is generally open Monday through Friday from 8:00 a.m. until 5:00 p.m. depending on staffing. Parking at the Ranger Station accommodates twelve vehicles. Maintenance shops are located within a fenced maintenance yard behind the offices. An RV dump station is available year-round just off the main North Park entrance road.

5. Little Red Beach Picnic Area. A small picnic area is provided near the east end of the dam for fishing access at the area known as Little Red Beach. The shoreline is closed to vehicles. Picnic tables and a non-flush restroom have been installed in the area.

6. Day-Use Areas. There are no additional developed day-use areas for individuals or groups on the East Shore.

7. Staff Residences. There are no staff residences within the South Fork State Recreation Area as called for in the 1984 Plan. A staff residence was proposed to be located in the East Shore Management Area but it has not been built due to lack of funding and a change in management philosophy.

West Shore Development Area

The western shore is relatively undeveloped in comparison to the eastern shore. Small day use areas with picnic tables and grills dot the shoreline, some with shade structures. The area is popular for fishing, boating, jet skiing, and kayaking (figure 3.9)

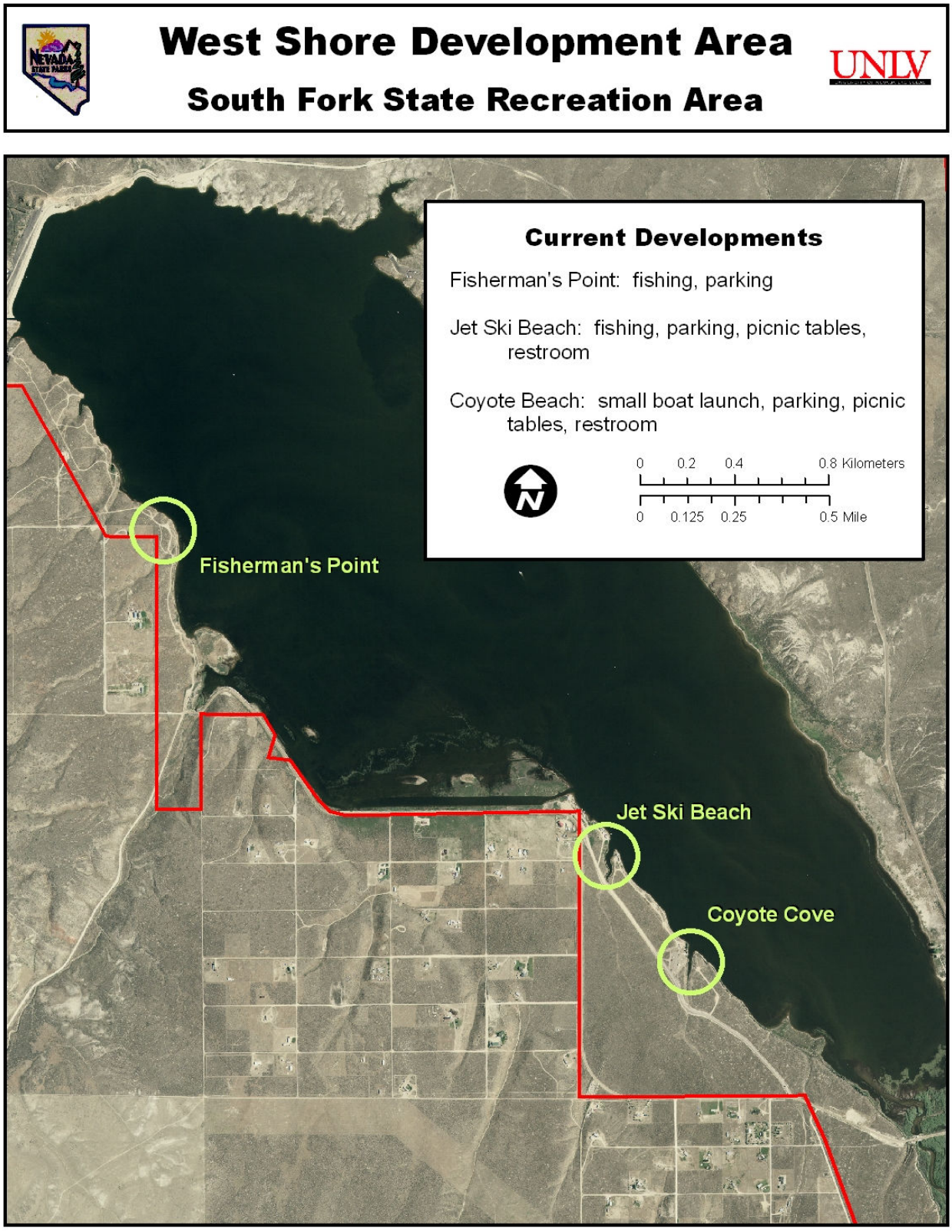


Figure 3.9 West Shore Development Area

Figure 3.10

Coyote Cove Boat Ramp

Photo credit: UNLV 2006

1. Coyote Cove Boat Ramp Area. A second boat launch was completed in 1999 in a small cove in the southwest shore (Figure 3.10). It accommodates boats up to 15 feet long, but the narrowness of the cove makes access difficult especially during low water. There are three picnic tables available for day use.

2. Jet Ski Beach. Currently there are two picnic tables with shelters; eight tables with grills; one picnic table with shelter for handicapped use only; and one cross-rail hitching post along a joint-use equestrian and hiking trail.

3. Fisherman's Point. This area is accessible by two-wheel drive high-clearance vehicles. It is relatively undeveloped and sees only dispersed day use.

b. Wildlife Management Areas

Areas downstream from South Fork Dam and upstream from the causeway (Lucky Nugget Road) are managed as wildlife habitat in conjunction with the Nevada Department of Wildlife. In addition, an area adjacent to the west shore is managed for wetland mitigation. These areas were set aside for passive recreation only because of their wet meadow vegetation communities, tree cover, and riparian ecologic systems. The areas provide prime habitat for small game, waterfowl nesting, migratory waterfowl resting and collection areas, and fish spawning.

The 1984 Plan called for construction of boardwalks through the wetlands, observation blinds and viewing towers. These amenities have not been built.

North Wildlife Management Area. This area encompasses approximately 108 acres. The North Wildlife Management Area is

underdeveloped and contains no facilities. Access to the area is by foot only; it is used by hikers, fishermen, and equestrians. Management is for fishery habitat and non-motorized use.

1. One service road provides maintenance access as well as access for hikers and equestrians. A separate trail roughly follows remnants of the Hastings Cutoff that lies north of the dam.

South Wildlife Management Area. This area encompasses approximately 866 acres.

2. Equestrian Facilities. The 1984 Plan called for development of an equestrian area complete with a small group picnic shelter, cross-rail hitching posts and water troughs, parking for vehicles and horse trailers, and information kiosks with trail maps. Equestrian trails were to be developed separately from pedestrian trails. An equestrian trailhead has been established at the northern end of the South Wildlife Management Area. It currently consists of a graded parking area that can accommodate approximately five vehicles and horse trailers and a single cross-rail hitching post (Figure 3.11).

3. Humboldt River Trail Loop Project. This trail, currently under construction, will loop around the southwestern edge of the reservoir and feature both equestrian and hiking trails within the South Wildlife Habitat Management Area.

Figure 3.11

Equestrian trailhead in the South Wildlife Management Area

c. Wetland Mitigation Area.

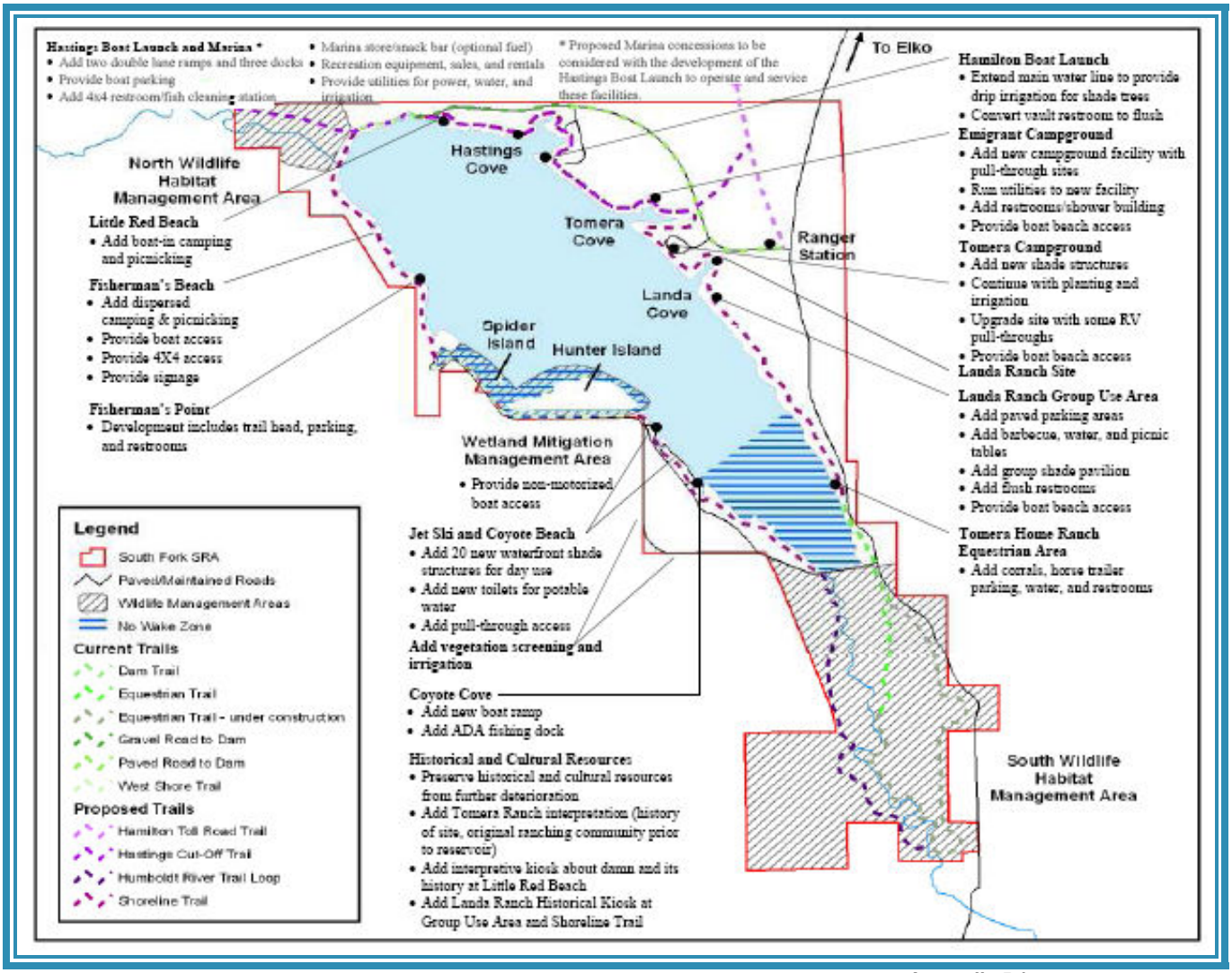
A dredged channel separates Hunter and Spider islands and the wetlands from the west shore, limiting coyote access to waterfowl nesting and resting areas. The area encompasses approximately 127 acres and will continue to be managed for wetland quality in partnership with NDOW.

4. PLANTING SCHEME

Due to the extreme weather conditions at South Fork SRA, non-native landscape species are used at developed sites where irrigation is available. A number of Austrian pines and a variety of deciduous trees are planted near the park offices. Aspen, Pennsylvania ash, cottonwoods and other conifer trees are planted in the developed campground.

IV. DEVELOPMENT PLAN

SOUTH FORK DEVELOPMENT PLAN



Appendix 5.1

A. PROPOSED PLAN

1. Plan summary

Alternatives - Maps and summaries of three development alternatives are located in Appendices 4-1 through 4-3.

Preferred Plan 2007 – Alternative 3, by public and staff review and recommendation, represents the most desirable and practicable development from the current conditions.

Overall development themes are to reflect the rural western heritage of Elko County and surrounding areas.

South Fork SRA provides convenient year-round recreational opportunities for motorized and non-motorized water-based activities.
Group-use, day-use and overnight land-based recreation opportunities will be enhanced and expanded, including blue ribbon fishing, a variety of picnicking areas, and developed and dispersed camping.
Improve and expand multi-use trails to provide quality non-motorized opportunities for hiking, mountain biking and horseback riding. Develop Motorized trailhead in cooperation with other agencies for access to trails on other public lands.

The site's natural and historical resources will continue to be protected and interpreted to educate and inform the public on the wildlife habitat areas, the local ranching history, and the California Emigrant Trail.

2. Management areas (description, types of facilities)

East Shore Development Area

The majority of the South Fork recreational facility development will be concentrated along the upland terraces/bluff areas adjacent to the eastern shoreline of the reservoir. This area was selected as the prime area for recreational development due to: its ease of control; access from the Lower South Fork and Dam roads; isolation from nearby residential subdivision developments; accessibility to the reservoir shoreline; and favorable conditions and opportunities for recreational development. This development area includes:

Little Red Beach – small boat in camping/picnic area

Hastings Boat Launch – new proposed boat ramp and future marina

Hamilton Boat Launch – existing boat ramp

Emigrant Campground – new proposed campground

Tomera Campground – existing campground

Landa Ranch Group Use Area – new proposed group campground

Tomera Home Ranch Equestrian Area – new proposed equestrian area

Shop and Office Complex – existing administrative/maintenance facility

West Shore Development Area

Development in this management area will be concentrated along the western shoreline of the reservoir. This area was selected for recreational development due to: its ease of control; access from the Lucky Nugget access road; accessibility to the reservoir shoreline; and popular conditions and opportunities for recreational opportunities differing from those offered on the East Shore. This development area includes:

Coyote Cove Boat Launch – existing small craft and float tube launch

Jet Ski/Coyote Beaches – existing waterfront camping and picnicking

Fisherman's Point – existing trailhead and access point to wildland recreational opportunities

Fisherman's Beach – remote and dispersed wild land recreational use

Wildlife Management / Habitat Areas

Wildlife management and habitat areas are to be managed in conjunction with the Nevada Department of Wildlife (NDOW). Areas were selected for management based on existing or developed wet meadow vegetation communities, tree cover, riparian ecologic systems, and favorable conditions for small game habitat, waterfowl nesting areas, migratory waterfowl rest and collection areas, and fish spawning areas. Recreational facilities proposed for development in these areas are limited to: trails and boardwalks; wildlife viewing platforms and observation towers; and interpretive boards postings and kiosks.

North Wildlife Habitat Management Area

Wetland Mitigation Management Area

South Wildlife Habitat Management Area

3. Facilities Management (matrix, identifying new facilities and services proposed for each management area)

- **East Shore Development Area**
  - **Little Red Beach**
    - Develop 2 – 3 sites with tables and grills for boat/walk- in remote camping/picnicking.

- **Hastings Boat Launch**
    - Develop a new boat ramp consisting of four (4) launch lanes and three (3) loading docks.
    - Extend power and water utilities to the site.
    - Provide flush restrooms, fish cleaning station, yard hydrants, night lighting and landscaping with 3 – 4 picnic tables.
    - Provide 100 to 150 paved car and boat trailer parking sites.
- **Hamilton Boat Launch**
    - Extend power and water utilities to the site.
    - Replace existing vault toilet with flush restrooms, yard hydrants, night lighting and landscaping with 2 – 3 picnic tables.
- **Emigrant Campground**
    - Develop new campground facility with 20 - 30 sites.
    - Shade structures, RV pull-throughs and multiple vehicle sites.
    - Extend power and water utilities to the site.
    - Electrical and water utility hook-ups at some sites.
    - Provide flush restrooms and showers, yard hydrants, night lighting and landscaping.
    - Develop beach access for boat beaching and mooring.
- **Tomera Campground**
    - Add new shade structures to existing campsites.
    - Upgrade some sites to RV pull-throughs and/or add additional spaces for multiple vehicles.
    - Add additional sites for RV’s and trailers.
    - Expand irrigation and landscaping.
    - Develop beach access for beaching and mooring boats.

- **Landa Ranch Group Use Area**
    - Develop new group-use area for 200 – 250 people.
    - Extend power and water utilities to the site.
    - Develop paved access road and parking area.
    - Provide flush restrooms, yard hydrants, night lighting and landscaping.
    - Provide pavilion with barbeque, water, picnic tables.
    - Provide gravel RV parking/camping area for overnight group use.
    - Develop large grass area for play and tent set up.
    - Volleyball court and enclosed horseshoe pit.
    - Develop beach access for beaching and mooring boats.
- **Tomera Home Ranch Equestrian Area**
    - Develop an equestrian staging facility with horse trailer parking and horse corrals, cross rail hitching posts and watering troughs.
    - Provide map displays for on and off site trail destinations and trail markers.
    - Provide five to six picnic sites to include barbecues, and picnic tables grouped to be useable as a small group facility.
    - Landscaping will be added around the ranch site.
    - Provide flush restrooms and water.
    - Five picnic sites will be dispersed along a new, shoreline trail.
- **Shop and Office Complex**
    - Add 22,500 feet of chain link fence to increase secured shop yard.
    - Add a 2,400 Square foot metal storage building.

- **West Shore Development Area**
    - **Coyote Cove Boat Launch**

- Add new boat launch with a new 2 lane 1center slide dock boat launch.
- Develop ADA accessible fishing dock.
- Develop paved access road and parking area.
- Extend power and water utilities to the site.
- Provide flush restrooms, yard hydrants, night lighting, landscaping and irrigation with 3 – 4 picnic sites with tables and grills.

- **Jet Ski/Coyote Beaches**
  - Develop new campground with shade structures along the westside shoreline.
  - Extend power and develop potable water well for the site.
  - Provide restrooms, yard hydrants, night lighting and landscaping.
  - Provide drip irrigation for new trees to provide windbreak and vegetative screen along the south and west park boundary.
- **Fisherman's Point**
  - Signed access to dispersed primitive camping and picnicking.
- **Fisherman's Beach –** Remote primitive access.

- **Trails (Appendix 5.2)**
  - A shoreline trail will be developed that goes all the way around the reservoir.
  - Develop Hamilton OHV Trailhead parking.
    - Cooperate with the County and BLM for the development of an off-road vehicle recreation plan.
    - Provide map displays for on and off-site trail destinations and trail markers.
    - Develop trailhead/parking area for 5 – 6 vehicles and trailers for OHV loading and off-loading.

- Develop Hastings Cutoff Trail below dam to north side of river.

    - Develop an equestrian/pedestrian interpretive/access trail to provide recreational access on the Northeast side of the Humboldt River below the dam, using the approximate alignment of the historic Hastings Cutoff of the Emigrant Trail.

- Develop Humboldt River Trail Loop.

    - Develop an equestrian/pedestrian interpretive/access trail to provide recreational access on both the West and East side of the Humboldt River South of the causeway.

    - Develop an equestrian/pedestrian bridge spanning the Humboldt River, at or near the river gauging station above the reservoir.

- **Interpretation**

    - The preservation of historical and cultural resources from further deterioration will be implemented.

    - Kiosks and other interpretative displays regarding the Tomera and Landa Ranches will be added to historical and cultural resources.

    - A new interpretive kiosk about the dam and its history as well as a parking area will be added at Little Red Beach.

    - Acquisition of era appropriate farming equipment for further interpretation will be actively pursued and done as practicable.

    - Development and implementation of a Park Interpretation Plan will be completed by 2010.

- **North Wildlife Habitat Management Area**

    - Provide trails and boardwalks through wetland habitat areas.

    - Develop observation blinds and viewing towers with wildlife and waterfowl interpretive displays.

- **Wetland Mitigation Management Area**

    - Small non-motorized boat launch will be added.
    - Provide trails and board-walks through wetland habitat areas.

    - Develop observation blinds and viewing towers with wildlife and waterfowl

interpretive displays.

- **South Wildlife Habitat Management Area**

    - Provide trails and boardwalks through wetland habitat areas.

    - Develop observation blinds and viewing towers with wildlife and waterfowl interpretive displays.

- **Marina Concession Area (Future Option)**

    - The land area between the Hamilton Boat Launch and the future Hastings Boat Launch is proposed as a site for a possible Marina Concession. The concession would be a future consideration after the construction of the Hastings Boat Launch to assist in the management and operation of this new site.

    - The recreational facilities proposed for development in this area would be through a lease/concession agreement with a private concessionaire and may include:

        - A convenience store/bait shop.

        - Grill and snack bar.

        - Beach area.

        - Fueling station.

        - Marina dock with rental boat slips and moorings.

        - Fenced security yard for RV and boat storage.

4. Natural Resource Management scheme

- The land surrounding the reservoir is comprised of approximately 2,200 acres of scenic meadow areas and low rolling hills and terraces overlooking the river valley. The entire shoreline will be apart of the recreation facility and will have public access. Much of the meadow areas are old agricultural hay fields that have been left to return to native vegetation. Above and below the reservoir the river corridors are being allowed to meander and develop a more natural corridor. Cottonwood galleries and willow riparian areas are reestablishing themselves and provide for native wildlife communities to return to the newly developing habitats.

- **Landscape Management**

  - Landscape Management schemes within the park will reflect the cultural heritage of rural ranch life of the late 1800's and early 1900's. Where practical heritage and native vegetation will be used to compliment the aesthetic values of the recreational experience.

- **Habitat Management**

  - The North and South Wildlife Management Areas and the Wetlands Mitigation Area are managed as wildlife habitat areas in conjunction with the Nevada Department of Wildlife. These areas were selected due to existing wet meadows and shallow marshes, tree galleries, willow riparian systems and overall favorable conditions for large and small game habitat, waterfowl nesting areas, migratory staging and harvesting, and fish spawning areas. Management schemes will be implemented that promote a healthy balanced ecology and maintain quality habitats within the recreational area. Limited recreation is proposed for these areas generally relating to seasonal hunting, trails management and interpretive and viewing opportunities.

B. IMPLEMENTATION

- **Recreational Facilities Development Expansion 2007 – 2017**

  Future phased project development will be dependent upon park usage, environmental considerations, available funding from outside sources and future authorization of funding from the Nevada Legislature.

  Development Priorities: as per section 3. Facilities Management (Matrix). Priorities are based on ongoing projects and available funding or access to funding.

  # 1 Priorities:

  - West Shore Development Projects.
    - All development in this area may be considered as one project.
  - Wildlife and Mitigation Management areas.
  - Trails and Interpretation.

  # 2 Priorities:

- Hastings Boat Launch.
- Little Red Beach.

3 Priorities:

- Landa Group Use Area.
- Tomera Campground.

4 Priorities:

- Emigrant Campground.

5 Priorities:

- Tomera Home Ranch Equestrian Area.

2. Acquisition schedule

a. Existing and proposed boundaries – No Changes.
b. Problem with existing situation – None.
c. Priorities for changes — by phase – N/A.
d. Recommendations for acquisition process (how to acquire)

- **R&PP lease properties from BLM expire in 2011. The patent process for these leases is underway. Should the process exceed the lease term, an extension will need to be sought.**